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(54) **ADJUSTABLE DIVIDER ARRANGEMENT FOR A LUGGAGE CASE**

(57) An adjustable divider arrangement for a luggage case (100) is provided. The luggage case (100) may include a plurality of walls defining an internal storage volume (102), the plurality of walls including opposing major faces (120) and a plurality of sidewalls (122); an internal divider (140) separating the internal storage volume (102) into a first storage volume (142) defined between the internal divider (140) and an opposing wall (144), the internal divider (140) movably mounted relative to the opposing wall (144); at least two straps (180) positioned near opposite ends or sides of the internal divider (140)

and each connected to at least one of the walls of the luggage case (100) on or proximate to the opposing wall (144); and at least one buckle (190) mounted on the divider (140). Each buckle (190) may adjustably grip a corresponding strap (180) at different positions along the length of the strap (180) so as to secure the internal divider (140) to the strap (180) at different positions along the length of the strap (180) and thereby to position the internal divider (140) at different heights (H) from the opposing wall (144).

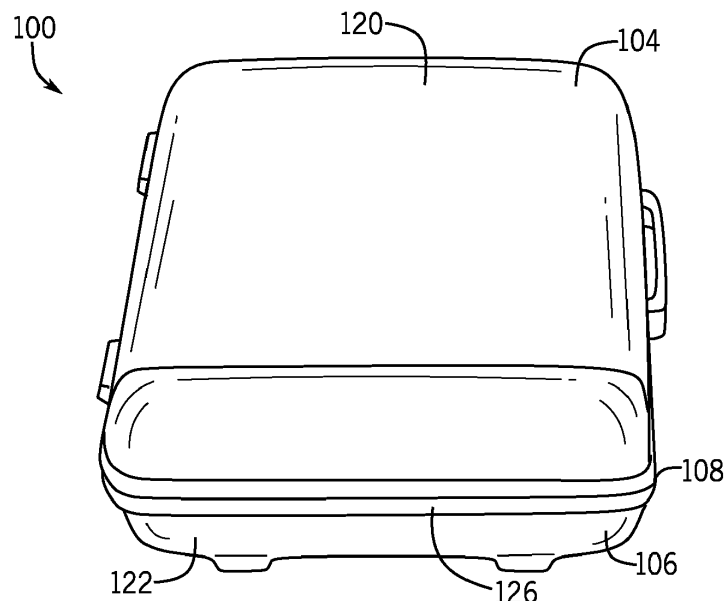


FIG. 1

Description

TECHNICAL FIELD

[0001] The present disclosure relates generally to luggage articles, and more specifically to an adjustable internal divider arrangement for a luggage case.

BACKGROUND

[0002] It is often desirable to at least partially secure the contents within a luggage case and/or divide the internal volume of a luggage case into separate compartment or compartments. Some luggage cases accordingly include internal dividers provided inside the case in a fixed height, flat position from the bottom wall of the case and typically centrally between the two opposing shells of the luggage case and separating the internal case volume into a separate compartment. The internal divider may be moveable to allow access to the divided compartment but is typically at a fixed height. Such luggage cases often include a separate tensioning system underneath the internal divider to hold contents in place. Traditional tensioning systems, which may also be used without an internal divider, include a cross-strap system with webbings or elastic members holding down the contents. The cross straps, however, do not generate an even pressure and therefore cause creases or wrinkles in the clothing. The internal divider(s) in some luggage cases are also not completely fixed to the luggage case, presenting gaps between the internal divider and the case through which a user's contents can undesirably shift.

[0003] It is therefore desirable to provide an improved luggage case, and more specifically an improved divider arrangement for adjustably coupling the internal divider to a luggage case that addresses one or all of the above described problems and/or which more generally offers improvements or an alternative to existing arrangements.

[0004] Documents that may be related to the present disclosure include CN205658510, EP0379438, EP2230959, EP2904926, FR2711044, FR2921237, US6435324, and US8607947.

SUMMARY

[0005] The present disclosure provides an adjustable divider arrangement for a luggage case, as described below and defined in the accompanying claims. The present disclosure advantageously provides a divider arrangement that provides improved adjustment of a movable internal divider to the luggage case. For example, the divider arrangement according to the present disclosure may allow the internal divider to be movably mounted within the luggage case. The internal divider may be adjustably secured within the luggage case via one or more strap and buckle configurations to press the internal divider against the contents positioned below the internal

divider. The large flat area of the internal divider generates an even pressure on the contents, which can limit wrinkling of clothing secured beneath the internal divider. Furthermore, the internal divider allows the contents of the case to be compressed within the case such that more items can be packed within the case. Preferably, the internal divider is fixed to the sidewalls of the luggage case to avoid small items from coming out from under the internal divider and becoming trapped in the case opening and/or preventing closing of the case. The internal divider is also preferably mounted under spring bias to lift the internal divider away from an opposing wall of the luggage case for easy packing.

[0006] Embodiments of the present disclosure may include an adjustable divider arrangement for a luggage case. The luggage case may include a plurality of walls defining an internal storage volume, an internal divider separating the internal storage volume into a first storage volume, at least two straps positioned near opposite ends or sides of the internal divider and each connected to at least one of the walls of the luggage case, and at least one buckle mounted on the internal divider. The plurality of walls may include opposing major faces and a plurality of sidewalls. The first storage volume may be defined between the internal divider and an opposing wall, preferably a major face. The divider may be movably mounted relative to the opposing wall. Each strap may be connected to at least one of the walls of the luggage case on or proximate to the opposing wall. Each buckle may adjustably grip a corresponding strap at different positions along the length of the strap so as to secure the internal divider to the strap at different positions along the length of the strap and thereby to position the internal divider at different heights from the opposing wall of the luggage case.

[0007] In some embodiments, the internal divider may be joined around at least a portion, and preferably around substantially all, of a periphery of the internal divider to the luggage case, and preferably to the sidewalls of the luggage case. The internal divider may include a gusset, and preferably a flexible fabric gusset, coupling at least a portion of the periphery of the internal divider to at least a portion of the periphery of the luggage case. The divider, and preferably the divider and the gusset, may completely close off the first storage volume.

[0008] In some embodiments, the at least two straps may include four straps positioned at opposing corners of the internal divider.

[0009] In some embodiments, the internal divider may be joined to the luggage case at least adjacent a split line of the luggage case. The split line may define a first shell and a second shell such that each shell includes a major face and a plurality of opposing sidewalls extending from the major face.

[0010] In some embodiments, the internal divider may include a selective opening defined therein to allow selective access to the first storage volume through the internal divider. The opening may be selectively opened

and/or closed by a zipper closure.

[0011] In some embodiments, the internal divider may include a peripheral frame, the peripheral frame preferably including a plurality of elongate rods, at least two of which are connected together. The internal divider may include a planar panel, preferably a flexible fabric panel, coupled to the peripheral frame. The planar panel may correspond to the shape and size of the internal storage volume. The at least one buckle may be coupled to the peripheral frame of the internal divider.

[0012] In some embodiments, the luggage case includes a plurality of corner members biasing the internal divider towards and/or away from the opposing wall based on the distance of the internal divider from the opposing wall. The corner members may be semi-rigid strips or flexible straps locating and holding the peripheral frame in place. The corner members may be located at the corners of the peripheral frame and extend diagonally within the luggage case.

[0013] In some embodiments, the luggage case may include at least one shell. The internal divider may be provided on the at least one shell.

[0014] In some embodiments, the opposing wall may be a rear or inner surface of a major face of the luggage case.

[0015] In some embodiments, each strap may be connected to the at least one of the walls of the luggage case below the internal divider.

[0016] Additional embodiments and features are set forth in part in the description that follows, and will become apparent to those skilled in the art upon examination of the specification or may be learned by the practice of the disclosed subject matter. A further understanding of the nature and advantages of the present disclosure may be realized by reference to the remaining portions of the specification and the drawings, which forms a part of this disclosure. One of skill in the art will understand that each of the various aspects and features of the disclosure may advantageously be used separately in some instances, or in combination with other aspects and features of the disclosure in other instances.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The description will be more fully understood with reference to the following figures in which components are not drawn to scale, which are presented as various embodiments of the present disclosure and should not be construed as a complete recitation of the scope of the disclosure, characterized in that:

Fig. 1 is a top perspective view of a luggage case in a closed configuration.

Fig. 2 is a top perspective view of the luggage case of Fig. 1 in an open configuration and including an internal divider positioned towards an opposing wall.

Fig. 3A is a top perspective view of the luggage case of Fig. 2 with the internal divider positioned away

from the opposing wall.

Fig. 3B is a top perspective view of the luggage case of Fig. 3A with the internal divider selectively opened. Fig. 4 is a schematic view of a divider arrangement and showing the internal divider positioned away from the opposing wall of the luggage case.

Fig. 5 is another schematic view of the divider arrangement and showing the internal divider positioned towards the opposing wall of the luggage case.

Fig. 6 is a perspective view of a buckle.

Fig. 7 is a cross-sectional view of one non-limiting example of the buckle.

Fig. 8 is a cross-sectional view of another non-limiting example of the buckle.

Fig. 9 is another cross-sectional view of the buckle of Fig. 8.

Fig. 10 is another cross-sectional view of the buckle of Fig. 8.

Fig. 11 is a schematic view of an internal frame structure of the divider arrangement according to an embodiment the invention.

DETAILED DESCRIPTION

[0018] According to the present disclosure, an adjustable divider arrangement is provided for adjustably mounting an internal divider within the internal storage volume of a luggage case. The divider arrangement includes at least two straps positioned near opposite ends or sides of the internal divider and each connected to at least one of the walls of the luggage case on or proximate to a wall opposing the internal divider, and at least one buckle mounted on the internal divider. Each buckle may adjustably grip a corresponding strap at different positions along the length of the strap so as to secure the internal divider to the strap at different positions along the length of the strap and thereby to position the internal divider at different heights from the opposing wall.

[0019] According to an embodiment of the present disclosure, illustrated in Figs. 1-3B, a luggage case 100 includes a housing formed from a plurality of walls or panels (hereinafter "walls" for the sake of convenience without intent to limit) defining an internal storage volume 102 in which to carry a user's belongings. In one embodiment, the luggage case 100, which may be rectangular in shape, includes at least one shell, such as a first shell 104 and a second shell 106 defined by a split line 108. The luggage case 100 may be transformable between a closed configuration (see Fig. 1) and an open configuration (see Fig. 2). For example, the first and second shells 104, 106 may be pivotably attached together (e.g., via a hinge structure or similar mechanism). In such embodiments, the first and second shells 104, 106 may be pivoted towards or away from each other to close or open the luggage case 100, respectively. The hinge structure may be a fabric strip, a piano hinge, a living hinge, spaced-apart discrete hinges, a zipper structure, or an

articulating joint made of elastomeric material or the like, among others.

[0020] In a preferred embodiment the luggage case 100 is an upright spinner case (see Fig. 1), but could be any type of typical luggage case. In one embodiment, a split line 108 defines the first and second shells 104, 106 such that each shell includes a major face 120 and a plurality of opposing sidewalls 122 extending from the major face 120. Together, the opposing sidewalls 122 define respective peripheral edges 124 of the first and second shells 104, 106 at the split line 108 between the first and second shells 104, 106. In some embodiments, a frame may be coupled to at least one of the first and second shells 104, 106 at the peripheral edge 124. The first and second shells 104, 106, which may be front and rear shells or a lid and a base, respectively, may be sized identically to each other, or one of the shells (e.g., the rear shell) may be sized to include a larger or smaller internal volume. The split line 108 may extend longitudinally along the luggage case 100 substantially parallel to the major faces 120 of the first and second shells 104, 106. In some embodiments, the split line 108 may jog or extend at an angle relative to at least one major face 120 of the luggage case 100. In some embodiments, the luggage case 100 may further include one or more support members, positioned on the bottom end wall. In some embodiments, the support member is a foot. In some embodiments, the support member is a plurality of wheels, such as spinner wheels, positioned on a bottom end wall. The plurality of wheels may be positioned on the bottom end wall of the front and/or rear shell(s). In some embodiments, the luggage case may also include one or more carry handles positioned on a side or end wall and/or a retractable tow handle, extendible from a top face or end wall of the luggage case.

[0021] Depending on the particular application, the luggage case 100 may include a closure mechanism 126. The closure mechanism 126 may be secured along the respective peripheral edges 124 of the first and second shells 104, 106 to allow selective user actuation for opening and closing of the luggage case 100. In the open configuration, the closure mechanism 126 is disengaged along substantially the entire length of the split line 108, allowing the first and second shells 104, 106 to pivot relative to each other to any amount from partially open to fully open. The closure mechanism 126 is disclosed herein primarily as a zipper closure, although other types of closure mechanisms are contemplated, including without limitation a plurality of closure mechanisms (e.g., one or more latches) spaced discretely along the split line 108.

[0022] As described herein, and as illustrated in Figs. 2-3B, the luggage case 100 includes an internal divider 140 separating the internal storage volume 102 into a plurality of storage portions. In one embodiment, the internal divider 140 separates the internal storage volume 102 into a first storage volume or compartment 142 (hereinafter "first storage volume" for the sake of convenience without intent to limit) defined between the internal divider

140 and an opposing wall 144 of the luggage case 100 (see Figs. 3B-5). Depending on the particular application, the opposing wall 144 may be any of the walls defining the housing of the luggage case 100. In a preferred embodiment, however, the opposing wall 144 is one of the major faces 120 of the luggage case 100. For example, in one embodiment, the first storage volume 142 may be defined between the internal divider 140 and one of the front or rear faces of the luggage case 100.

[0023] As described below, the internal divider 140 is movably mounted within the internal storage volume 102 of the luggage case 100. For example, the internal divider 140, which may be rectangular in shape, may be provided on at least one shell (e.g., on the first shell 104, on the second shell 106, or on each of the first and second shells 104, 106). In each embodiment, the internal divider 140 is movably mounted relative to the opposing wall 144. In such embodiments, the internal divider 140 may move towards or away from the opposing wall 144 to secure various amounts or volume of user belongings, such as varying amounts or volume of clothing, within the first storage volume 142. For instance, the internal divider 140 may be positioned away from the opposing wall 144 to secure an increased amount and/or an increased volume of user belongings within the first storage volume 142 (see Fig. 4). In like manner, the internal divider 140 may be positioned towards the opposing wall 144 to secure a decreased amount and/or a decreased volume of user belongings within the first storage volume 142 (see Fig. 5).

[0024] In one embodiment, the internal divider 140 may be adjustably coupled to the luggage case 100 to accommodate various volumes of user belongings within the first storage volume 142. For example, the internal divider 140 may move relative to the opposing wall 144 and tightened against the user belongings within the first storage volume 142. For instance, to accommodate for a decreased volume of user belongings within the first storage volume 142, the internal divider 140 may move towards the opposing wall 144 and tightened against the user belongings in a first position (see Fig. 5). To accommodate for an increased volume of user belongings within the first storage volume 142, and also more generally allow easier initial packing, the internal divider 140 may move away from the opposing wall 144 and then tightened against the user belongings in or towards a second position (see Fig. 4). This also compresses a user's belongings and the contents to allow more room for other belongings within the remainder of the internal volume of the luggage case 100 as well as securing a user's belongings within the luggage case 100.

[0025] The internal divider 140 may be coupled to the luggage case 100 in a variety of manners. In one embodiment, the internal divider 140 may be sealingly joined or coupled around at least a portion, and preferably around substantially all, of a periphery of the internal divider 140 to the luggage case 100. In a preferred embodiment, the internal divider 140 is joined to the side-

walls 122 of the luggage case 100. Depending on the particular application, the internal divider 140 may be joined to the sidewalls 122 at any position between the major face 120 and the peripheral edge 124, such as at the peripheral edge 124 or below the peripheral edge 124, among others. For example, the internal divider 140 may be joined to the sidewalls 122 at least adjacent the split line 108 of the luggage case 100. In one embodiment, illustrated in Figs. 2-5, a gusset 150 may couple at least a portion of the periphery of the internal divider 140 to at least a portion of the periphery of the luggage case 100, such as defined by the sidewalls 122. In one embodiment, the internal divider 140 and/or the gusset 150 may be joined to a frame extending adjacent the peripheral edge 124 of the first or second shell 104, 106. In embodiments with a gusset, the gusset 150 may be configured to allow movement of the internal divider 140 relative to the opposing wall 144. For instance, the gusset 150 is preferably flexible, such as being formed from a flexible fabric material. As described below, the internal divider 140, and preferably the internal divider 140 and the gusset 150, may completely close off the first storage volume 142. For example, the gusset 150 may seal the internal divider 140 to the luggage case 100 to limit undesirable removal or insertion of small items from or into the first storage volume 142.

[0026] In a preferred embodiment, the internal divider 140 includes a peripheral frame 160 (see Figs. 4 and 5). The peripheral frame 160 supports the internal divider 140 within the internal storage volume 102. For example, the internal divider 140 may include a planar panel 162. The planar panel 162 may be flexible, such as being formed from flexible fabric material. In some embodiments, the planar panel 162 may be semi-rigid. For example, the planar panel 162 may be a panel or injected frame over-injected with a semi-rigid material to define a screen. The planar panel 162 may be attached to the peripheral frame 160 such that the planar panel 162 is at least partially maintained in a taut condition. In some embodiments, the planar panel 162 may correspond to the shape and size of the internal storage volume 102.

[0027] The peripheral frame 160 may be arranged in substantially any manner. In a preferred embodiment, the peripheral frame 160 includes a plurality of elongate rods 164, such as pultrusions, which may be formed from blended steel wire in substantially any cross-sectional shape (e.g., square shaped, round, oval, etc.). At least two of the rods 164 may be connected together to define a frame structure, the frame structure extending adjacent one or more of the sidewalls 122. Depending on the particular embodiment, the peripheral frame 160 may extend around, or at least partially around, the periphery of the internal divider 140. In each embodiment described herein, the peripheral frame 160 may move adjacent the sidewalls 122 of the luggage case 100 as the internal divider 140 moves relative to the opposing wall 144. Depending on the particular embodiment, the peripheral frame 160 may be positioned closely adjacent the sidewalls 122 or

may be spaced away from the sidewalls 122 to provide a desired aesthetic and/or functional characteristic. For instance, spacing the peripheral frame 160 away from the sidewalls 122 may lengthen the gusset 150 to allow the internal divider 140 to move towards or away from the opposing wall 144 a greater amount.

[0028] The internal divider 140 may include other features for convenience. In one embodiment, illustrated in Figs. 2-3B, the internal divider 140 may include a selective opening 170 defined therein (e.g., within the planar panel 162) to allow access to the first storage volume 142 through the internal divider 140. The opening 170 may be selectively opened (see Fig. 3B) and closed (see Figs. 2 and 3A) to allow selective access to the first storage volume 142. For example, the opening 170 may be selectively opened and closed by a zipper closure 172. The zipper closure 172 may be positioned at or within the perimeter of the frame structure. As described more fully below, the opening 170 may be selectively opened and closed independent of the internal divider 140 moving relative to the opposing wall 144. For example, and without limitation, the internal divider 140 may be moved towards or away from the opposing wall 144 regardless of whether the opening 170 is opened or closed. In similar fashion, the opening 170 may be opened or closed regardless of the position of the internal divider 140 relative to the opposing wall 144.

[0029] Alternatively, the internal divider 140 could be joined to the walls of the luggage case 100 directly via a zip to allow the internal divider 140 for at least part of its periphery to be released from the walls to allow access to the first storage volume 142 below the internal divider 140. For example, the internal divider 140 may be joined to the sidewalls 122 and/or the major face 120 of the luggage case 100 via a zipper tape. One half of the zipper tape may be attached to the luggage case 100, and the other half of the zipper tape may be attached to the internal divider 140, such as via stitching, adhesive, and/or seam welding, among others.

[0030] The luggage case 100 includes at least one strap 180 (e.g., at least one strap, at least two straps, four straps, etc.) arranged to control movement and/or adjust the position of the internal divider 140 within the internal storage volume 102 (see Figs. 2-5). For example, as explained below, each strap 180 may be adjusted to define the position of the internal divider 140 relative to the opposing wall 144, such as limiting the extent of movement of the internal divider 140 away from the opposing wall 144. In one embodiment, an effective length of one or more straps 180 may be shortened (e.g., tightened) to move the internal divider 140 towards the opposing wall 144 to decrease the volume of the first storage volume 142. In one embodiment, decreasing the volume of the first storage volume 142 may tighten the internal divider 140 against the contents positioned within the first storage volume 142. For example, the one or more straps 180 may be tightened to press the internal divider 140 against the contents positioned within the first

storage volume 142 such that the contents are compressed a desired amount, as described below. For example, each strap 180 may be adjusted to press the internal divider 140 against the contents to limit movement of the contents within the first storage volume 142 during transport. In embodiments where the internal divider 140 includes a planar panel 162, the planar panel 162 may provide an increased surface area configured to engage the contents within the first storage volume 142 compared to traditional elastic strap compression systems. The increased surface area of the planar panel 162 may provide an even pressure over a larger area of the contents, which may limit wrinkling of clothing secured within the first storage volume 142, for instance.

[0031] In like manner, the effective length of one or more straps 180 may be lengthened (e.g., loosened) to allow the internal divider 140 to be moved away from the opposing wall 144. For example, the strap(s) 180 may be lengthened to increase the volume of the first storage volume 142. In one embodiment, increasing the volume of the first storage volume 142 may loosen the internal divider 140 against the contents positioned within the first storage volume 142. Additionally or alternatively, increasing the volume of the first storage volume 142 may permit a user to place desired contents within the first storage volume 142, such as filling the first storage volume 142 with a desired amount of clothing.

[0032] In one embodiment, illustrated in Figs. 4 and 5, each strap 180 may be positioned near an end or side of the internal divider 140 and connected to at least one of the walls of the luggage case 100, such as on or proximate to the opposing wall 144. In embodiments including two or more straps 180, the straps 180 may be positioned at opposite ends or sides of the internal divider 140 to control the movement and/or the position of the opposing ends of the internal divider 140. For example, at least two straps 180 may be positioned adjacent each respective corner of each opposing end of the internal divider 140. In a preferred embodiment, the luggage case 100 includes four straps 180 positioned towards or at the four corners of the internal divider 140. Preferably, each strap 180 is connected to the luggage case 100 below the internal divider 140, such as to or adjacent the major face 120 opposing the internal divider 140 (see Figs. 4 and 5). In one embodiment, each strap 180 may be connected to the opposing wall 144 of the luggage case 100. Each strap 180 may be flexible, such as being formed from flexible webbing material.

[0033] The luggage case 100 may include at least one buckle 190 (e.g., one buckle, two buckles, four buckles, etc.) mounted on the internal divider 140, such as to correspond with each strap 180 (see Figs. 4 and 5). In such embodiments, each strap 180 may extend from the luggage case 100 to a corresponding buckle 190 to secure the internal divider 140 within the internal storage volume 102. Each buckle 190 may adjustably grip its corresponding strap 180 to position the internal divider 140 at a desired distance or height (H) away from the opposing wall

144. For example, each buckle 190 may adjustably grip its corresponding strap 180 at different positions along the length of the strap 180 so as to secure the internal divider 140 to the strap 180 at different positions along the length of the corresponding strap 180, which may position the internal divider 140, such as the ends of the internal divider 140, at different heights H from the opposing wall 144 of the luggage case 100 (see Figs. 4 and 5). In some embodiments, each buckle 190 may be biased to automatically lock onto a corresponding strap 180 as the strap 180 is tightened to pull the internal divider 140 towards the opposing wall 144. Additionally or alternatively, each buckle 190 may be selectively releasable to allow the strap 180 to move in an opposite direction and allow the internal divider 140 to be moved away from the opposing wall 144, as described more fully below.

[0034] Each buckle 190 may be mounted to the internal divider 140 in a variety of manners. For example, as described below, at least a portion of each buckle 190 may be mounted to the planar panel 162. Additionally or alternatively, at least a portion of each buckle 190 may be mounted to the peripheral frame 160 of the internal divider 140. Each buckle 190 may be releasably or fixedly secured to the internal divider 140. For example, at least a portion of each buckle 190 may be formed integrally with a portion of the peripheral frame 160. Additionally or alternatively, portions of each buckle 190 may be stitched, welded, and/or adhesively attached to the internal divider 140 (e.g., to the planar panel 162).

[0035] Each buckle 190 may include substantially any configuration operable to adjustably grip a corresponding strap 180. In one embodiment, each buckle 190 may be configured such that a corresponding strap 180 may move relative to the buckle 190 freely in one direction but may be limited from moving relative to the buckle 190 in an opposite direction. For example, the strap 180 may move freely relative to the buckle 190 in a first direction (e.g., upwards in Figs. 4 and 5) to allow the internal divider 140 to be tightened against the contents within the first storage volume 142. For instance, each buckle 190 may be arranged such that the strap 180 may move freely relative to the buckle 190 in the first direction to decrease the effective length of the strap 180 (i.e., the length of the strap 180 between the internal divider 140 and the luggage case 100). To limit loosening of the internal divider 140, the strap 180 may be limited from moving relative to the buckle 190 in a second direction (e.g., downwards in Figs. 4 and 5). For example, each buckle 190 may be arranged such that movement of the strap 180 relative to the buckle 190 in the second direction increases the grip between the buckle 190 and the strap 180 to limit undesired lengthening of the strap 180.

[0036] In one non-limiting example, each buckle 190 may include a first member 192 and a second member 194 (see Figs. 6 and 7). The first and second members 192, 194 may interlock together in a manner to permit a degree of movement of the second member 194 relative to the first member 192 to adjustably grip a corresponding

strap 180, as described more fully below. The first member 192 may include a pair of opposing walls 196 defining a cavity 198 therebetween, the strap 180 arranged to extend through the cavity 198. As illustrated in Fig. 7, the opposing walls 196 may converge towards each other such that the cavity 198 includes a narrower width nearer the bottom of the first member 192. As described below, the converging nature of the opposing walls 196 may facilitate the adjustable gripping nature of the buckle 190. In some embodiments, the first member 192 may include a flange 200 extending away from at least one of the opposing walls 196. In such embodiments, the flange 200 may be coupled to the internal divider 140 to mount the buckle 190 to the internal divider 140. For example, and without limitation, the planar panel 162 may be stitched to the flange 200 (see Figs. 4 and 5). Additionally or alternatively, the peripheral frame 160 may be coupled to the flange 200, such as via structure surrounding a portion of the peripheral frame 160 and stitched to the flange 200 (see dashed structure shown in Figs. 4 and 5).

[0037] The second member 194 may be configured to interlock with the first member 192. For instance, in the embodiments of Figs. 7-9, the second member 194 may include a first portion 210 and a second portion 212 extending from the first portion 210. The second portion 212 may be sized and shaped to be inserted at least partially within the cavity 198 defined in the first member 192. In such embodiments, each buckle 190 may include an engagement member 220 coupled to the second portion 212 to adjustably grip the strap 180. The engagement member 220 may be roller 222 rotatably coupled to the second portion 212. As explained below, the roller 222 may permit selective movement of the strap 180 through the buckle 190 while simultaneously providing selective grip between the strap 180 and the buckle 190 to secure the internal divider 140 to the strap 180 at different positions along the length of the strap 180. For example, the roller 222 may be biased to automatically lock onto a strap 180 as the strap 180 is tightened. In such embodiments, the roller 222 may be selectively releasable to disengage the strap 180, as described below.

[0038] In one non-limiting example, illustrated in Fig. 7, the roller 222 may include opposing end pins 230 arranged to be received within opposing slots 232 defined within the second portion 212. The slots 232 may be elongated such that the roller 222 is permitted to move axially along the length of the slots 232 to adjustably grip the strap 180. For example, the roller 222 may move, such as automatically, to a first position (e.g., lowered downwards toward the bottom of the buckle 190) to grip the strap 180 between the roller 222 and the first member 192 (e.g., between the roller 222 and one of the opposing walls 196 of the first member 192). To release the grip between the roller 222 and the first member 192, the roller 222 may be moved to a second position (e.g., lifted upwards toward the top of the buckle 190). In such embodiments, movement of the roller 222 relative to the first member 192 may change the distance between the roller

222 and the first member 192. For instance, movement of the roller 222 to the first position may decrease the distance between the roller 222 and the first member 192. In like manner, movement of the roller 222 to the second position may increase the distance between the roller 222 and the first member 192. This varying distance may be realized in a variety of ways. For example, in a preferred embodiment, the converging nature of the opposing walls 196 may change the distance between the roller 222 and the first member 192 as the roller 222 moves within the cavity 198. Additionally or alternatively, the structure of the second member 194 may define the varying distance between the roller 222 and the first member 192, such as the slots 232 being angled towards one of the opposing walls 196, among others.

[0039] The varying distance between the roller 222 and the first member 192 may be configured to selectively bind the strap 180 within the buckle 190. For example, once the roller 222 is positioned in its first position, the strap 180 may be compressed between the roller 222 and the first member 192 to provide a sufficient degree of friction between the buckle 190 and the strap 180. In such embodiments, continued movement of the strap 180 in the second direction may increasingly compress the strap 180 between the roller 222 and the first member 192, thereby locking the buckle 190 to the strap 180 when the internal divider 140 is pressed against the contents within the first storage volume 142. Once the roller 222 is positioned in its second position, compression of the strap 180 between the roller 222 and the first member 192 is decreased (e.g., removed) such that the strap 180 may move freely relative to the buckle 190.

[0040] In some embodiments, the roller 222 may be biased to automatically seat in its first position to automatically lock onto the strap 180. For instance, the roller 222 may be biased towards its first position via gravity, a biasing element (e.g., a spring), and/or via movement of the strap 180 itself through the buckle 190, as noted above. The automatic seating characteristic of the roller 222 (and more generally the engagement member 220) to its first position may allow the buckle 190 to automatically lock onto the strap 180 as the strap is tightened to pull the internal divider 140 towards the opposing wall 144. In such embodiments, the roller 222 may be selectively releasable from the strap 180. For example, movement of the roller 222 to its second position may release the strap 180 to allow the strap 180 to move in an opposite direction within the buckle 190 and allow the internal divider 140 to be moved away from the opposing wall 144. The roller 222 may be moved to its second position in various manners, such as via movement of the second member 194 relative to the first member 192 of the buckle 190, as explained below.

[0041] In another non-limiting example, illustrated in Figs. 8-10, the roller 222 may be a hollow tube. In such embodiments, opposing bosses 240 may extend from the second portion 212 and towards each other. The roller 222 may be rotatably coupled to the bosses 240 to permit

substantially the same functionality of the embodiments described above with reference to Fig. 7. For instance, the bosses 240 may be sized annularly smaller than the internal bore of the roller 222 to permit the roller 222 to be moved to its first and second positions, as described above.

[0042] In some embodiments, the second member 194 of each buckle 190 may move relative to the first member 192 to position the roller 222 in its first and second positions to selectively bind or release the strap 180 within the buckle 190, respectively. For instance, the second member 194 may be moved downwards, such as automatically as described above or via manual manipulation by a user, to position the roller 222 lower within the cavity 198 of the first member 192 (e.g., in its first position) (see Fig. 5). Similarly, the second member 194 may be moved upwards to position the roller 222 higher within the cavity 198 of the first member 192 (e.g., in its second position) (see Fig. 4). To limit disassembly of the first and second members 194, the second member 194 may be snap fitted to the first member 192. For instance, as illustrated in Figs. 6 and 8, the second member 194 may include a resilient tab 250 including a shelf 252 extending outwardly from the tab 250, the shelf 252 arranged to engage a bottom surface of the first member 192 to limit movement of the second member 194 away from the first member 192.

[0043] The second member 194 may include other features for convenience. For example, the first portion 210 of the second member 194 may be a substantially planar element sized larger than the opening to the cavity 198 within the second member 194. Such a configuration may limit movement of the second member 194 towards the first member 192. In some embodiments, a slot 260 may be defined within the first portion 210 (see Figs. 6 and 7). The slot 260 may be defined above the cavity 198 of the first member 192. In such embodiments, the strap 180 may extend through the cavity 198 of the first member 192 and through the slot 260 of the second member 194, such as in substantial alignment. In some embodiments, a handle 262 may extend from the first portion 210 (e.g., from the top of the first portion 210). In such embodiments, a user may grasp the handle 262 (either directly or indirectly) to move the second member 194 relative to the first member 192 to selectively release the strap 180 from the buckle 190, such as moving the second member 194 away from the first member 192 to move the roller 222 to its second position, as described above. In one embodiment, an end of the strap 180 may be coupled to the handle 262 to limit removal of the strap 180 through the buckle 190. In some embodiments, a release strap 264 may be coupled to the handle 262 (see Figs. 4 and 5). In such embodiments, the release strap 264 may be pulled to selectively release the strap 180 from the buckle 190, such as moving the second member 194 away from the first member 192 to move the roller 222 to its second position, as described above. In some embodiments, the strap 180 and the release strap 264 may

include indicia indicating to a user which strap to pull to either tighten or loosen the internal divider 140.

[0044] The luggage case 100 may include a plurality of corner members 270 arranged to hold the peripheral frame 160 in place within the internal storage volume 102 of the luggage case 100. In a preferred embodiment, the corner members 270 bias the internal divider 140 towards one of two directions (see Figs. 4 and 5). In one embodiment, the corner members 270, which may include a spring or other biasing component, may bias the internal divider 140 relative to the opposing wall 144 of the luggage case 100. For example, the corner members 270 may bias the internal divider 140 towards or away from the opposing wall 144. In some embodiments, the corner members 270 may bias the internal divider 140 towards and/or away from the opposing wall 144 based on the distance of the internal divider 140 from the opposing wall 144. For example, the corner members 270 may bias the internal divider 140 away from the opposing wall 144 when the internal divider 140 is positioned at or above the point at which the corner members 270 are connected to the luggage case 100. This may help to lift the internal divider 140 away from the opposing wall 144 for easy packing of the first storage volume 142. In similar fashion, the corner members 270 may bias the internal divider 140 towards the opposing wall 144 when the internal divider 140 is positioned at or below the point at which the corner members 270 are connected to the luggage case 100. This may help to position the internal divider 140 adjacent the opposing wall 144 should the first storage volume 142 not be utilized or desired. Such a biasing configuration may allow the internal divider 140 to "flip" from an upper protruding position (see Fig. 3A) to a lower inverted position (see Fig. 2), or vice-versa.

[0045] Though the corner members 270 preferably bias the internal divider 140 towards and/or away from the opposing wall 144, the members 270 may be non-biasing in some embodiments. In such embodiments, the corner members 270 simply hold the peripheral frame 160 in place. In one embodiment, the corner members 270 may be semi-rigid strips or flexible straps to locate and hold the peripheral frame 160 in place. In the embodiments described herein, the corner members 270 may be located at the corners of the peripheral frame 160. The corner members 270 may extend diagonally within the luggage case 100.

[0046] The corner members 270 may be coupled to the internal divider 140 in numerous manners. For example, and without limitation, the corner members 270 may be coupled to the buckles 190, such as to the first member 192 of the buckles 190. Additionally or alternatively, the corner members 270 may be coupled to the peripheral frame 160 of the internal divider 140 (e.g., at the corners of the peripheral frame 160). In a preferred embodiment, the luggage case 100 includes four corner members 270 positioned near the corners of the internal divider 140 and towards the corners of the luggage case 100, though other configurations are contemplated. As

shown, the corner members 270 may be concealed from view beneath the gusset 150.

[0047] Operation of the internal divider 140 will now be discussed in detail. To pack the first storage volume 142, the internal divider 140 may be moved away from the opposing wall 144, such as under the bias of the corner members 270, to increase the volume of the first storage volume 142 (see Fig. 2). The selective opening 170 within the planar panel 162 of the internal divider 140 may be opened to access the first storage volume 142 (see Fig. 3B). A user may then pack the first storage volume 142 with a desired amount of belongings, such as clothing. The opening 170 may then be selectively closed to define a contiguous panel of the internal divider 140. The straps 180 may be moved relative to the buckles 190 in the first direction to tighten the straps 180 by decreasing their effective lengths, thereby pressing the internal divider 140 against the contents within the first storage volume 142. The straps 180 may be tightened until the contents are compressed a desired amount by the internal divider 140, such as a sufficient amount to limit shifting of the contents during transport. The compressed contents may provide a counter force against the internal divider 140 tending to bias the internal divider 140 away from the opposing wall 144, which biases each strap 180 to move in the second direction relative to the buckle 190. As described above, biased movement of the straps 180 in the second direction relative to the buckles 190 effectively locks the straps 180 within the buckles 190, such as via the roller 222 of each buckle 190 being positioned in its first position.

[0048] Should a user desire to decrease the amount of compression on the contents (e.g., to unpack the first storage volume 142), the user may release the gripping engagement of the buckles 190 on the straps 180. For example, the user may lift the second member 194 of the buckle 190 relative to the first member 192 to position the roller 222 in its second position, thereby releasing the friction engagement between the straps 180 and the buckles 190. The effective length of each strap 180 may then be increased to decrease the amount of compression on the contents within the first storage volume 142. The opening 170 within the internal divider 140 may be opened and the contents within the first storage volume 142 removed.

[0049] The luggage case 100 may be formed from a variety of materials and means. For example, the luggage case 100 may be formed from a thermoplastic material (self-reinforced or fiber reinforced), ABS, polycarbonate, polypropylene, polystyrene, PVC, polyamide, and/or PTFE, among others. In some embodiments, the peripheral frame 160 may be extruded from aluminum or other similar metal. In addition, the peripheral frame 160 may be formed from fiber reinforced epoxy, resin, or other similar material. The luggage case 100 may be formed or molded in any suitable manner, such as by plug molding, blow molding, injection molding, extrusion, casting, or the like. The luggage case 100 may be formed from soft side ma-

terial and/or hard side material. The soft side material may be nylon, canvas, polyester, leather, PVC, polypropylene, polyethylene, and/or PTFE, among others. The hard side material may be a thermoplastic material (self-reinforced or fiber reinforced), ABS, polycarbonate, polypropylene, polystyrene, PVC, polyamide, and/or PTFE, among others.

[0050] All relative and directional references (including: upper, lower, upward, downward, left, right, leftward, rightward, top, bottom, side, above, below, front, middle, back, vertical, horizontal, and so forth) are given by way of example to aid the reader's understanding of the particular embodiments described herein. They should not be read to be requirements or limitations, particularly as to the position, orientation, or use unless specifically set forth in the claims. Connection references (e.g., attached, coupled, connected, joined, and the like) are to be construed broadly and may include intermediate members between a connection of elements and relative movement between elements. As such, connection references do not necessarily infer that two elements are directly connected and in fixed relation to each other, unless specifically set forth in the claims.

[0051] Those skilled in the art will appreciate that the presently disclosed embodiments teach by way of example and not by limitation. Therefore, the matter contained in the above description or shown in the accompanying drawings should be interpreted as illustrative and not in a limiting sense. The following claims are intended to cover all generic and specific features described herein, as well as all statements of the scope of the present method and system, which, as a matter of language, might be said to fall there between.

Claims

1. A luggage case (100) comprising:

a plurality of walls defining an internal storage volume (102), the plurality of walls including opposing major faces (120) and a plurality of side-walls (122);

an internal divider (140) separating the internal storage volume (102) into a first storage volume (142) defined between the internal divider (140) and an opposing wall (144), the internal divider (140) movably mounted relative to the opposing wall (144);

at least two straps (180) positioned near opposite ends or sides of the internal divider (140) and each connected to at least one of the walls of the luggage case (100) on or proximate to the opposing wall (144); and

at least one buckle (190) mounted on the internal divider (140), each buckle (190) adjustably gripping a corresponding strap (180) at different positions along the length of the strap (180) so as

- to secure the internal divider (140) to the strap (180) at different positions along the length of the strap (180) and thereby to position the internal divider (140) at different heights (H) from the opposing wall (144) of the luggage case (100). 5
2. The luggage case (100) of claim 1, wherein the internal divider (140) is joined around at least a portion, and preferably around substantially all, of a periphery of the internal divider (140) to the sidewalls (122) of the luggage case (100). 10
 3. The luggage case (100) of claim 2, wherein the internal divider (140) further comprises a gusset (150), preferably a flexible fabric gusset, coupling at least a portion of the periphery of the internal divider (140) to at least a portion of the periphery of the luggage case (100). 15
 4. The luggage case (100) of claim 2 or 3, wherein the internal divider (140), and preferably the internal divider (140) and the gusset (150), completely closes off the first storage volume (142). 20
 5. The luggage case (100) of any preceding claim, wherein: 25

the at least two straps (180) comprises four straps positioned at opposing corners of the internal divider (140). 30
 6. The luggage case (100) of any preceding claim, wherein the internal divider (140) is joined to the luggage case (100) at least adjacent a split line (108) of the luggage case (100). 35
 7. The luggage case (100) of claim 6, wherein the split line (108) defines a first shell (104) and a second shell (106) such that each shell includes a major face (120) and a plurality of opposing sidewalls (122) extending from the major face (120). 40
 8. The luggage case (100) of any preceding claim, wherein the internal divider (140) comprises a selective opening (170) defined therein to allow selective access to the first storage volume (142) through the internal divider (140). 45
 9. The luggage case (100) of claim 8, wherein the opening (170) is selectively opened and/or closed by a zipper closure (172). 50
 10. The luggage case (100) of any preceding claim, wherein the internal divider (140) comprises a peripheral frame (160), the peripheral frame (160) preferably comprising a plurality of elongate rods (164), at least two of which are connected together. 55
 11. The luggage case (100) of claim 10, wherein the internal divider (140) comprises a planar panel (162), preferably a flexible fabric panel, coupled to the peripheral frame (160).
 12. The luggage case of claim 11, wherein the planar panel (162) corresponds to the shape and size of the internal storage volume (142).
 13. The luggage case (100) of any of claims 10-12, wherein the at least one buckle (190) is coupled to the peripheral frame (160) of the internal divider (140).
 14. The luggage case (100) of any preceding claim, further comprising a plurality of corner members (270) biasing the internal divider (140) towards and/or away from the opposing wall (144) based on the distance of the internal divider (140) from the opposing wall (144).
 15. The luggage case of claim 14, wherein the corner members (270) are semi-rigid strips or flexible straps locating and holding the peripheral frame (160) in place.
 16. The luggage case of claim 14 or 15, wherein the corner members (270) are located at the corners of the peripheral frame (160) and extend diagonally within the luggage case (100).
 17. The luggage case (100) of any preceding claim, wherein:

the luggage case (100) comprises at least one shell (104, 106); and
the internal divider (140) is provided on the at least one shell (104, 106).
 18. The luggage case (100) of any preceding claim, wherein the opposing wall (144) is a rear surface of a major face (120) of the luggage case (100).
 19. The luggage case (100) of any preceding claim, wherein each strap (180) is connected to the at least one of the walls of the luggage case (100) below the internal divider (140).

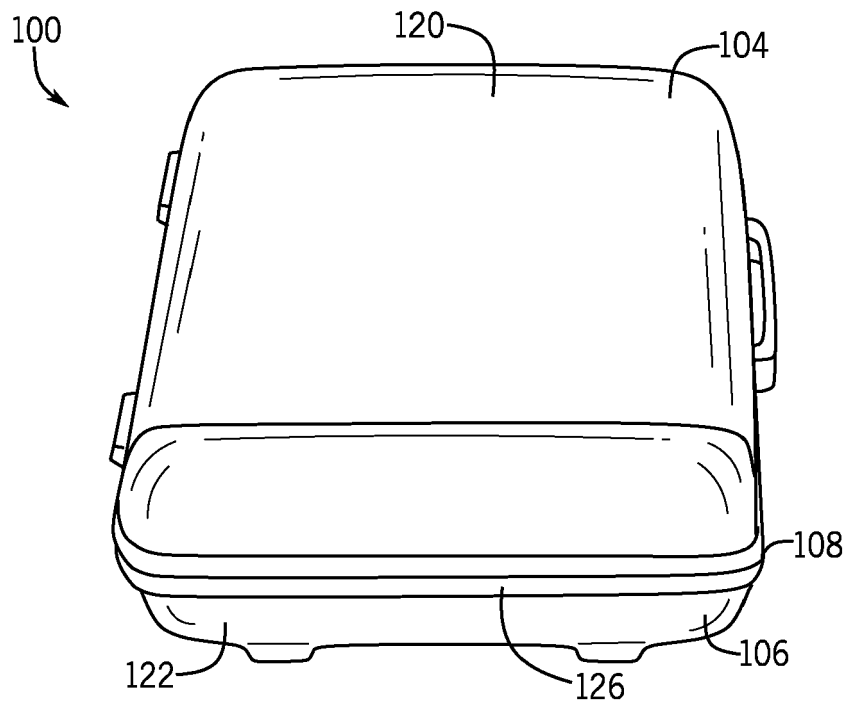


FIG. 1

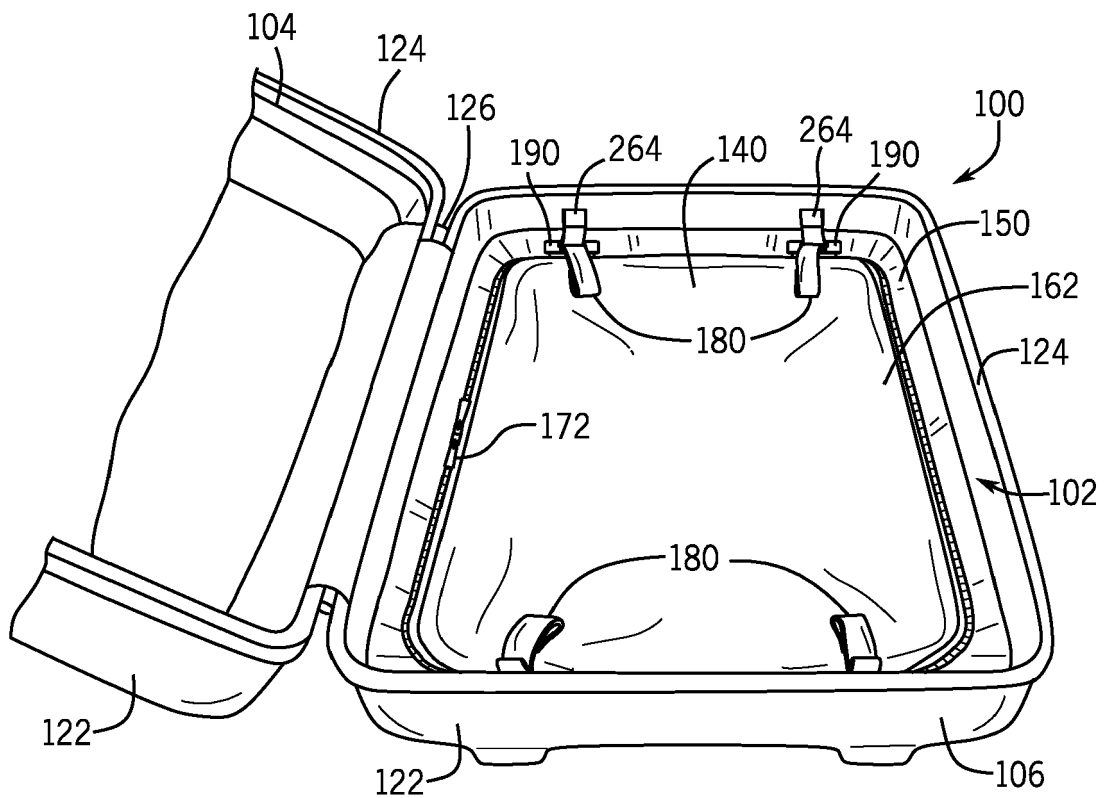


FIG. 2

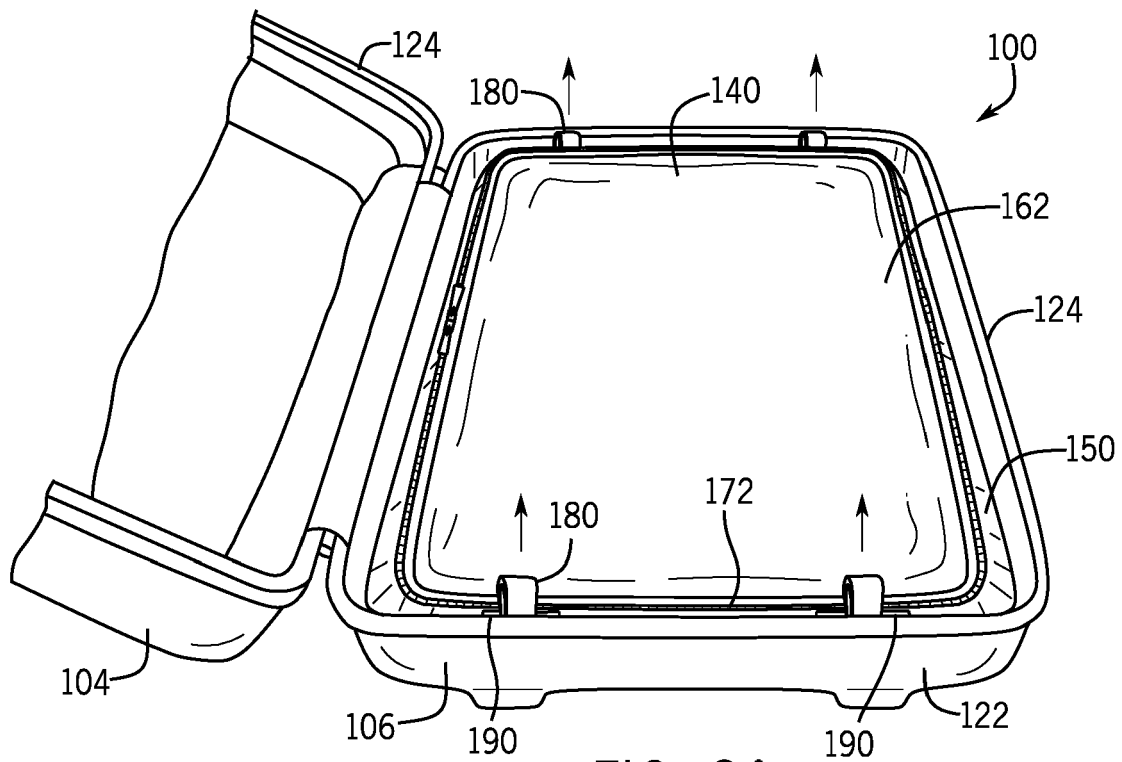


FIG. 3A

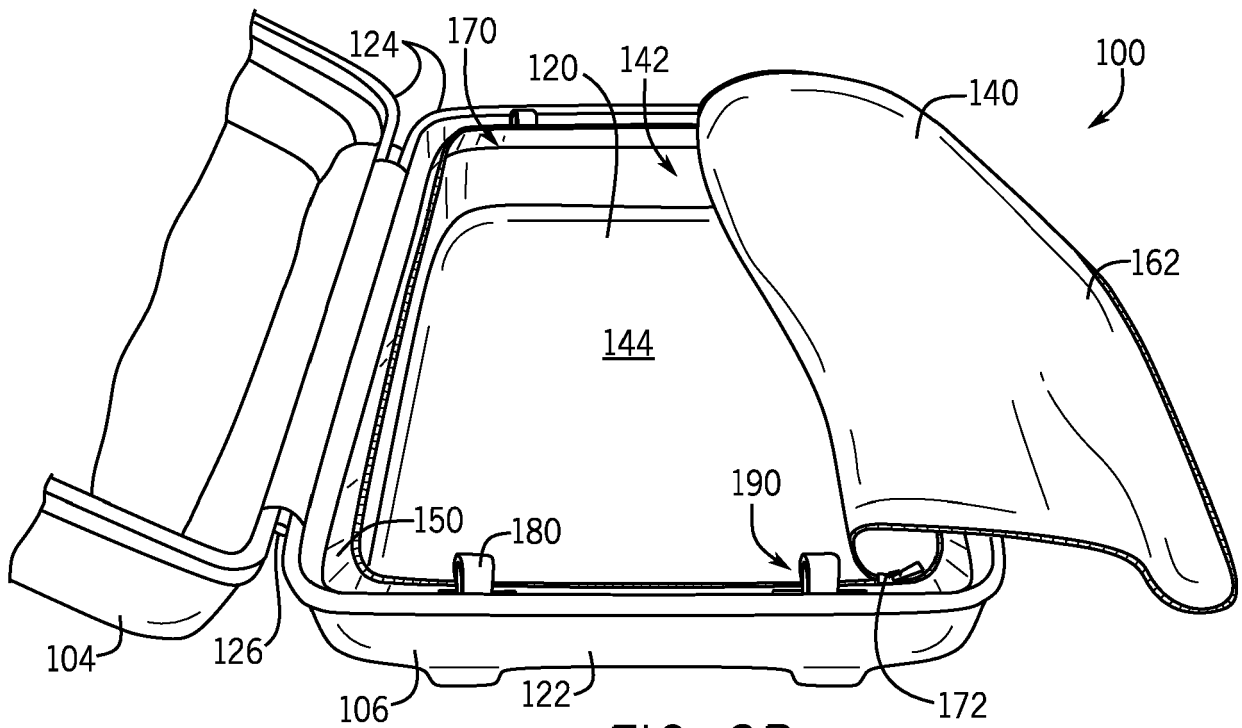


FIG. 3B

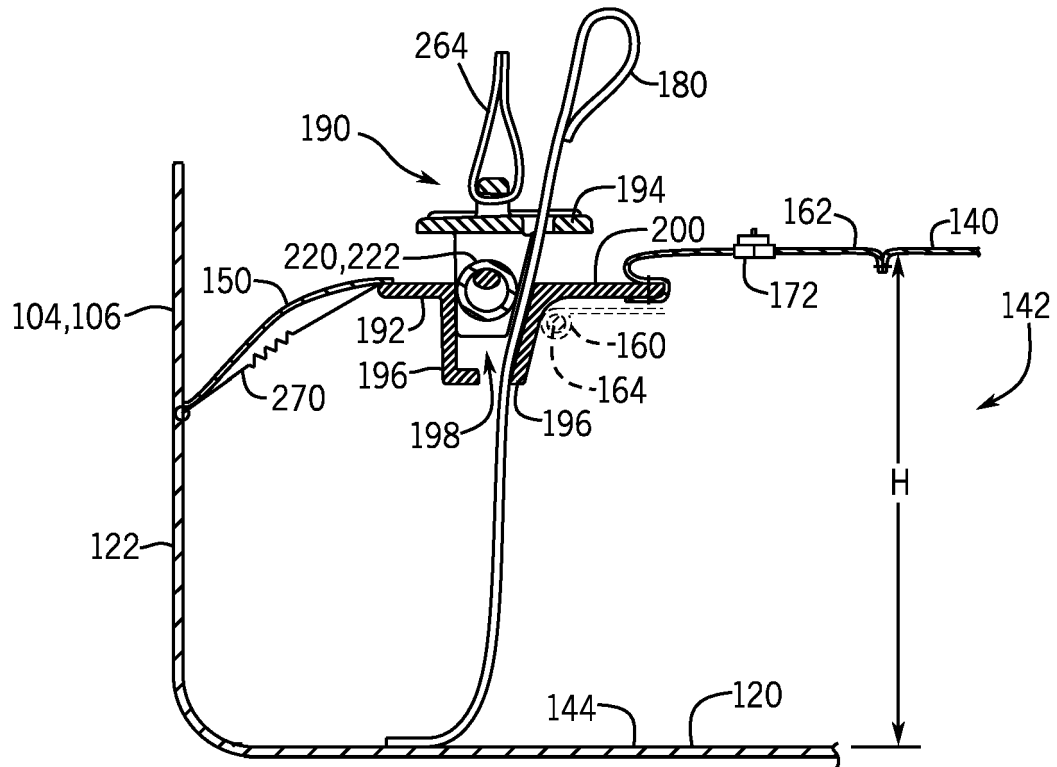


FIG. 4

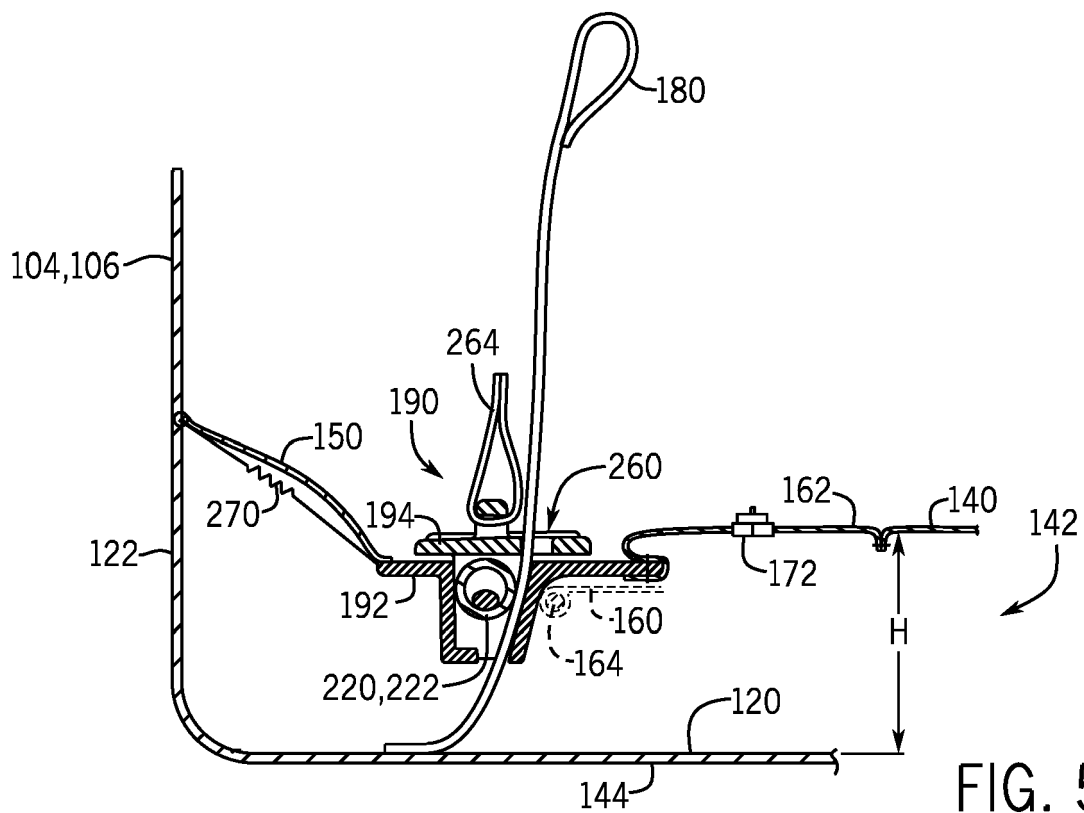


FIG. 5

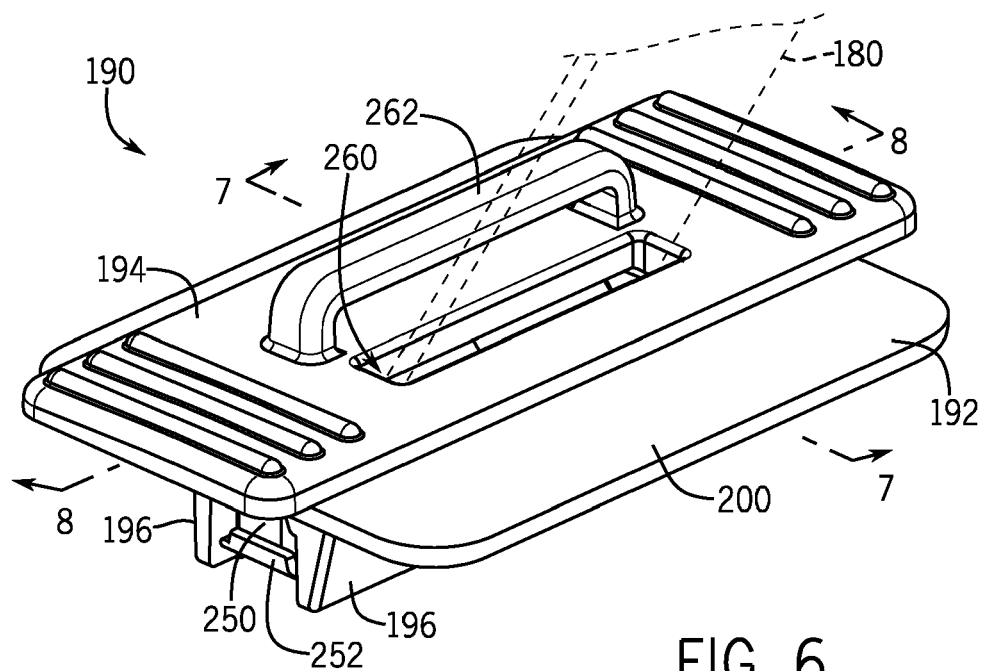


FIG. 6

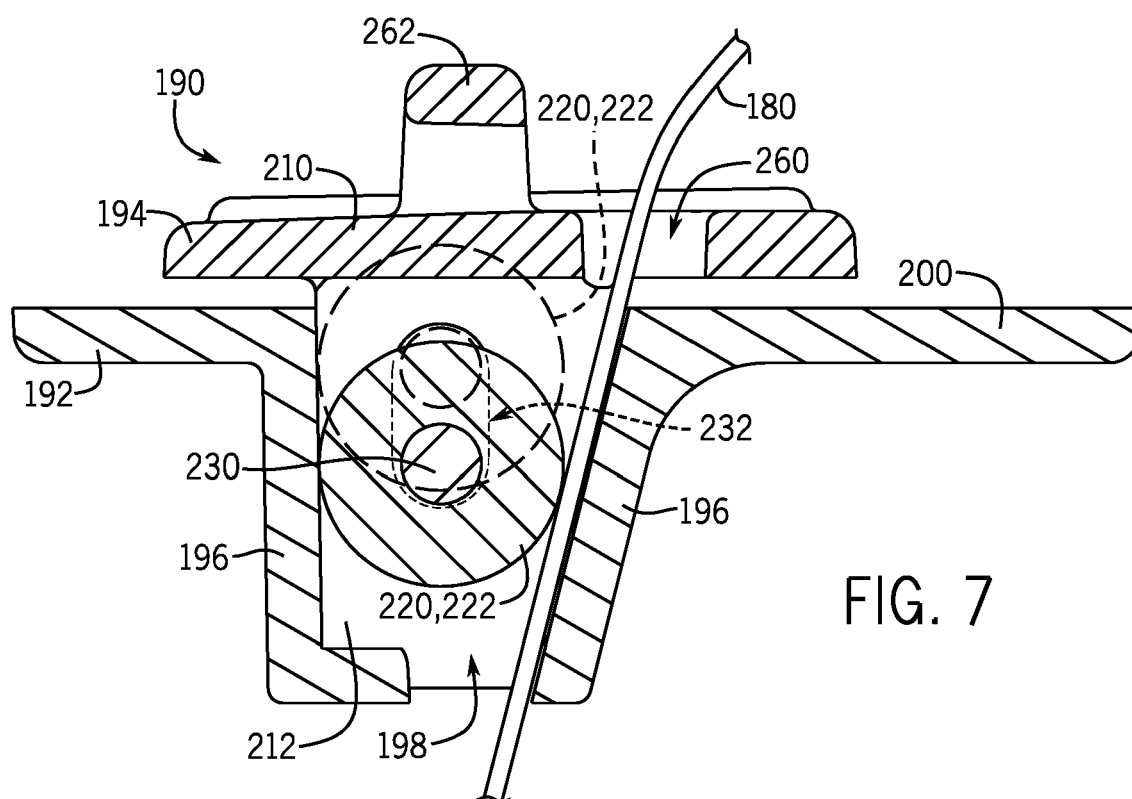


FIG. 7

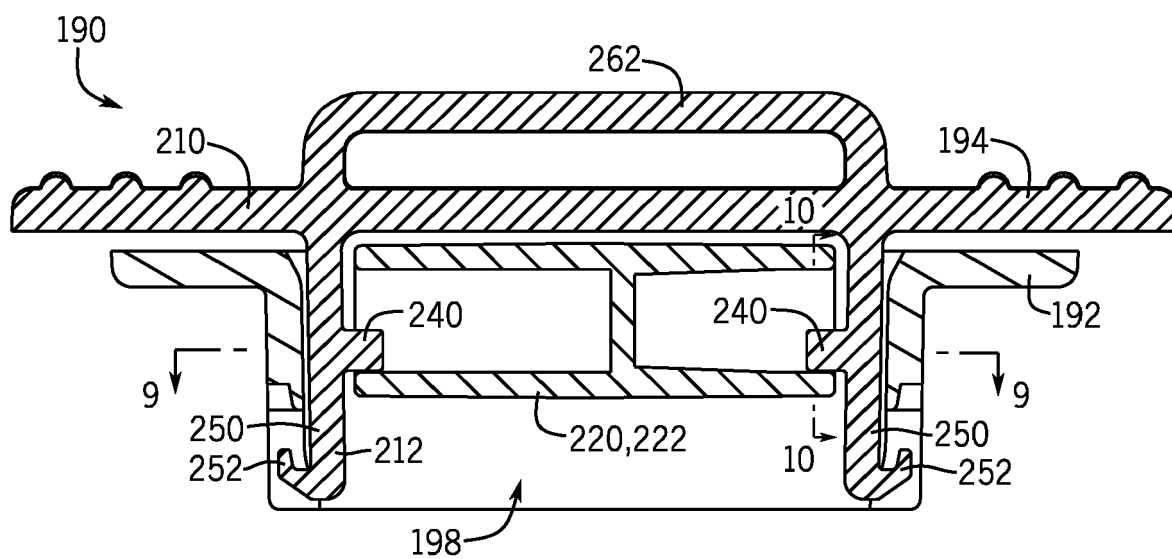


FIG. 8

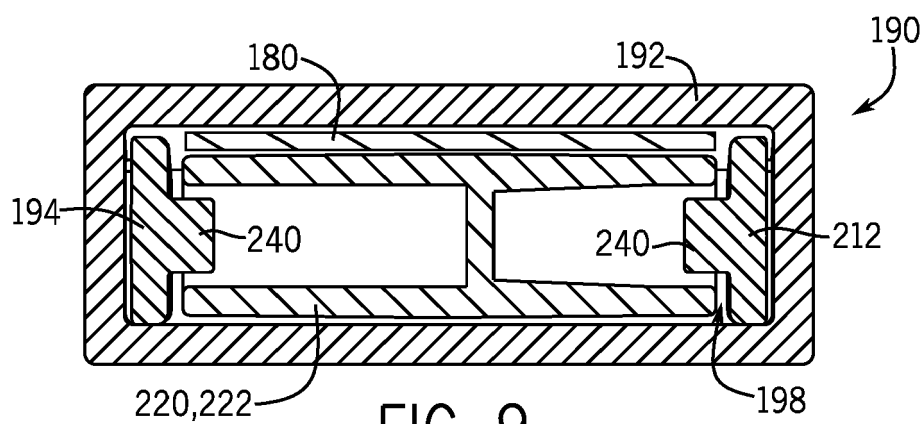


FIG. 9

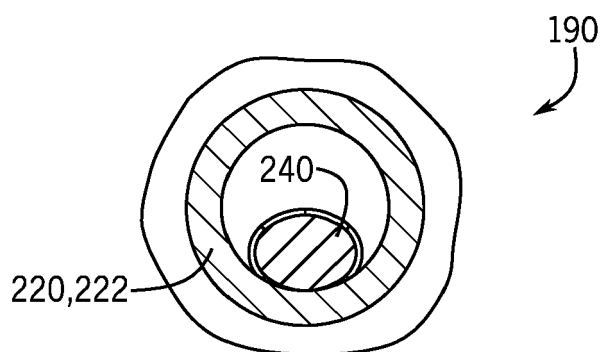


FIG. 10

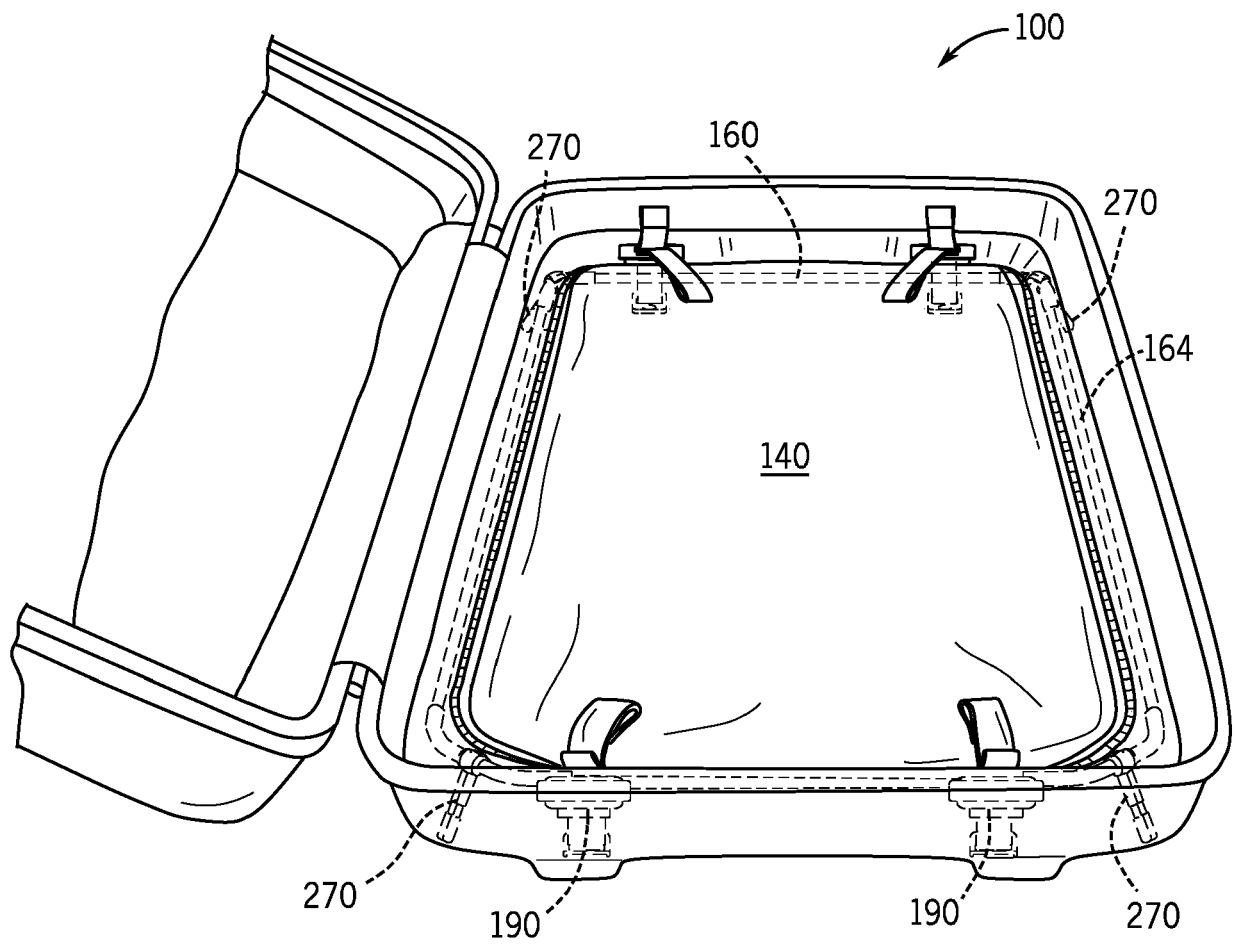


FIG. 11



EUROPEAN SEARCH REPORT

Application Number
EP 17 15 2317

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			A45C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 7 July 2017	Examiner Ionescu, C
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