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(54) **Expandable zipper structure for a luggage item**

(57) A dual closure mechanism for luggage items (100) having opposing portions (102, 104) may include a first zipper mechanism (164) operably engaging a peripheral edge (138, 140) of each of the opposing portions (102, 104), and a second zipper mechanism (164, 166) operably engaging a peripheral edge (138, 140) of each of the opposing portions (102, 104). The first and second zipper mechanisms (164, 166) may be arranged in a co-extensive configuration or an overlapping configuration or an overlying configuration or a superimposed configuration and configured to selectively zip and unzip independent of each other. The second zipper mechanism (166) may include a gusset (156) connecting the second zipper mechanism (166) and one of the peripheral edges (138, 140) of the opposing portions (102, 104) to thereby operably engage the peripheral edge (138, 140) of the opposing portion (102, 104). The opposing portions (102, 104) may be maintained in a closed unexpanded configuration when the first zipper mechanisms (164) is zipped, and be maintained in a closed and expanded configuration when the second zipper mechanisms (166) is zipped.

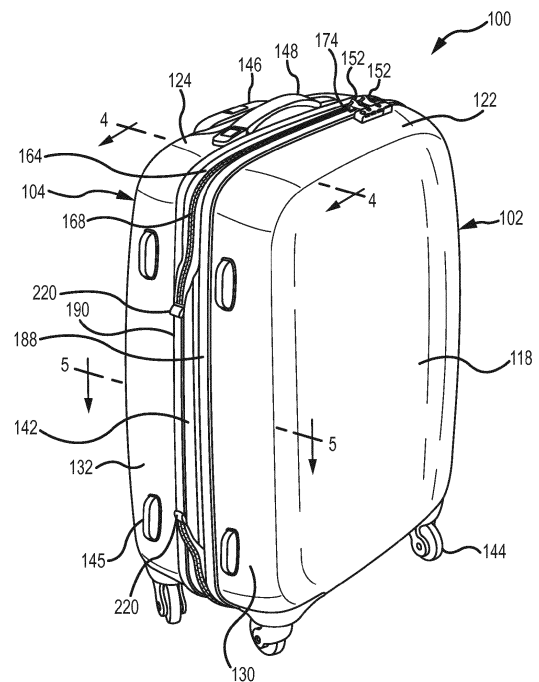


FIG.1

Description

TECHNOLOGICAL FIELD

[0001] The present disclosure generally relates to luggage. More particularly, the present disclosure relates to zipper configurations for expandable luggage.

BACKGROUND

[0002] Luggage items, such as suitcases, backpacks, duffel bags, briefcases, computer bags and so on, often include a primary opening/closing zipper to allow a user to access an inner compartment of the luggage item. The luggage item may also include an expansion zipper and a gusset for increasing the storage space of the luggage item. Each of the zipper halves of the expansion zipper is attached to an opposing side of the gusset. When the expansion zipper is zipped, the gusset is kept underneath the expansion zipper on the interior thereof. When the expansion zipper is unzipped, the gusset connected between the zipper halves of the expansion zipper expands and forms a portion of the luggage item, thereby increasing a storage space of the luggage item.

[0003] An expansion zipper of a luggage item is usually arranged along side and/or top panels or portions thereof of the luggage item, and is often configured to be positioned side-by-side with the primary opening/closing zipper along the side and/or top panels of the luggage item. Such configuration can be confusing to a user, especially when the expansion zipper is zipped. A user may mistake the primary opening/closing zipper for the expansion zipper, or vice versa. Moreover, the expansion zipper takes extra space along a depth dimension of the luggage item. Accordingly, panels or shells used for making non-expandable luggage cases that meet the size restrictions specified by airline companies may not be used for making expandable luggage cases due to the extra depth added by the expansion zipper. Any dimensional adjustment involved may result in additional cost in luggage design and manufacture.

[0004] Documents that may be related to the present disclosure in that they include various approaches to luggage zipper configurations include EP 1638427, EP 1689263, FR 2951915 (WO 2010122247), GB 2173393, TWM339233, US 2002148743, US 2007267262, US 6609598, US 7255145 and WO 2011093984. These proposals, however, may be improved.

[0005] It is therefore desirable to provide an improved luggage closure arrangement which addresses the above described problems and/or which more generally offers improvements or an alternative to existing arrangements.

SUMMARY

[0006] According to the present invention there is therefore provided a luggage item as described in the

accompanying claims.

[0007] In particular described herein is a zipper configuration for use in expandable luggage items, such as soft side suitcases, hard side suitcases, hybrid suitcases, backpacks, duffels, briefcases, computer bags and so on. The luggage item may include opposing portions and a zipper configuration for expandability.

[0008] In some examples, the zipper configuration may include a first zipper mechanism and a second zipper mechanism. The first zipper mechanism may operably engage a peripheral edge of each of the opposing portions of the luggage item and may be configured to selectively zip and unzip. The second zipper mechanism may operably engage a peripheral edge of each of the opposing portions of the luggage item and may be configured to selectively zip and unzip. The first zipper mechanism and the second zipper mechanism may be arranged in a superimposed or overlapping or overlying or coextensive configuration. The first and second zipper mechanisms may be configured to zip and unzip independent of each other. The second zipper mechanism may include a gusset. The gusset may connect the second zipper mechanism and one of the peripheral edges of the opposing portions to thereby operably engage the peripheral edge of the opposing portion. The opposing portions of the luggage item may be maintained in a closed unexpanded configuration when the first zipper mechanisms is zipped, and may be maintained in a closed and expanded configuration when the second zipper mechanisms is zipped.

[0009] In some examples, the first zipper mechanism may include opposing longitudinal edges, and the second zipper mechanism may include opposing longitudinal edges. One of the opposing longitudinal edges of the first zipper mechanism and one of the opposing longitudinal edges of the second zipper mechanism may operably engage one of the peripheral edges of the opposing portions. The other of the opposing longitudinal edges of the first zipper mechanism and the other of the opposing longitudinal edges of the second zipper mechanism may operably engage the other of the peripheral edges of the opposing portions.

[0010] In some examples, the gusset and one of the first or second zipper mechanisms may be arranged in an aligned configuration.

[0011] In some example, the gusset may define at least in part a wedge shape.

[0012] In some examples, one of the first or second zipper mechanisms may be configured to be exterior to the other of the first or second zipper mechanisms.

[0013] In some examples, the first zipper mechanism may define a row of engaged first zipper teeth, and the second zipper mechanism may define a row of engaged second zipper teeth.

[0014] In some examples, the first zipper teeth and the second zipper teeth may be longitudinally and/or vertically aligned. In some examples, the first zipper teeth and the second zipper teeth may not be longitudinally or

vertically aligned.

[0015] In some examples, the first zipper mechanism may further include at least one first zipper slider movable along the first zipper teeth. The second zipper mechanism may further include a second zipper slider movable along the second zipper teeth.

[0016] In some examples, the at least one first zipper slider and the at least one second zipper slider may be configured to zip and unzip in a same direction or in opposite directions.

[0017] In some examples, at least one of the first and second zipper mechanisms may further include an additional oppositely directed zipper slider.

[0018] In some examples, the luggage item may further include a luggage lock. The luggage lock may be configured to selectively restrict movement of at least one of the at least one first zipper slider and/or the at least one second zipper slider along the respective zipper teeth.

[0019] In some examples, the luggage item may further include a hinge element preferably having a width dimension.

[0020] In some examples, the width dimension of the hinge element may be preferably configured to be similar to a width dimension of the gusset. In some examples, the width dimension of the hinge element may be preferably configured to be similar to a width dimension of one of the first or second zipper mechanisms.

[0021] In some examples, the luggage item may include at least one portion at least in part defined by a relatively rigid shell.

[0022] In some examples, the luggage item may include at least one portion at least in part defined by a relatively flexible structure.

[0023] In some examples, the luggage item may further include an additional gusset. The second zipper mechanism may define two zipper halves. Each of the gussets may be positioned between one of the two zipper halves of the second zipper mechanism and respective opposing portions of the luggage item.

[0024] In some examples, the luggage item may be a suitcase, or backpack, or briefcase, or duffel or computer bag.

[0025] In some examples, the opposing portions of the luggage item may define opposing housing portions of a suitcase, or opposing top openings of a backpack, or briefcase, or duffel or computer bag.

[0026] This summary of the disclosure is given to aid understanding, and 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

[0027] The present invention will now be described by way of example only with reference to the following figures in which:

[0028] Fig. 1 is a perspective view of a luggage case in an unexpanded state, incorporating a zipper configuration that allows for expandability.

[0029] Fig. 2 is a perspective view of the luggage case shown in Fig. 1 in an expanded state.

[0030] Fig. 3 is a perspective view of the luggage case shown in Fig. 1 in an open state.

[0031] Fig. 4A is a representative cross section view of a top portion of the unexpanded luggage case shown in Fig. 1, viewed along line 4-4 in Fig. 1, with an outer zipper zipped, and an inner zipper unzipped.

[0032] Fig. 4B is representative cross section view similar to that of Fig. 4A, with the outer zipper zipped and the inner zipper zipped.

[0033] Fig. 5 is a representative cross section view of a side portion incorporating a hinge element of the unexpanded luggage case shown in Fig. 1, viewed along line 5-5 in Fig. 1.

[0034] Fig. 6 is a representative cross section view of a top portion of the expanded luggage case shown in Fig. 2, viewed along line 6-6 in Fig. 2, showing the inner zipper zipped and the outer zipper unzipped.

[0035] Fig. 7 is a representative cross section view of a side portion incorporating the hinge element of the expanded luggage case shown in Fig. 2, viewed along line 7-7 in Fig. 2.

[0036] Fig. 8A is a perspective view of a luggage case in an expanded state, incorporating a second example of a zipper configuration that allows for expandability.

[0037] Fig. 8B is a perspective view of a luggage case in an expanded state, incorporating a third example of a zipper configuration that allows for expandability.

[0038] Fig. 9 is a representative cross section view of a portion similar to that shown in Fig. 6 of a luggage case in an expanded state, incorporating a fourth example of a zipper configuration that allows for expandability.

[0039] Fig. 10 is a representative cross section view, similar to Fig. 4A, of a portion of a luggage case in an unexpanded state, incorporating a fifth example of a zipper configuration that allows for expandability.

[0040] Fig. 11 is a representative cross section view of a portion similar to that shown in Figs. 6 and 9 of a luggage case in an expanded state, incorporating a sixth example of a zipper configuration that allows for expandability.

[0041] Fig. 12 is a plan view of a portion of a luggage case in an expanded state, incorporating a luggage lock and the first example of the zipper configuration that allows for expandability.

[0042] Fig. 13 is a plan view of a portion of a luggage case in an expanded state, incorporating a luggage lock and a seventh example of a zipper configuration that allows for expandability.

DETAILED DESCRIPTION

[0043] Described herein is a dual closure mechanism for use in expandable luggage items, such as soft side

suitcases, hard side suitcases, hybrid suitcases, backpacks, duffels, briefcases, computer bags, or any luggage items that may desire expandability. The luggage item may include a housing compartment enclosed by opposing housing portions separable in part by a closure mechanism, such as a zipper mechanism. The opposing housing portions used herein may refer to a front panel and a rear panel (such as the relatively flexible or soft panels used for soft side suitcases), or a front shell and a rear shell (such as the relatively rigid shells used for hard side suitcases), or a combination of a relatively flexible structure and a relatively rigid structure that collectively define the body of the luggage item, or any two portions of the luggage item body separable by the closure mechanism (such as the zipped top opening of a backpack, duffel, computer bags, and so on).

[0044] By way of example and without limitation, Fig. 1 shows a luggage case 100 incorporating a dual closure mechanism that allows for expandability in a closed and unexpanded configuration. Fig. 2 shows the luggage case 100 incorporating the dual closure mechanism that allows for expandability in an expanded state. The luggage case 100 may include a main housing compartment having two opposing housing portions, for example without limitation, a front shell 102 and a rear shell 104, forming in general a parallelepiped shape defining an interior compartment for receiving items. The inner compartment of the luggage case 100 may include inner liners 106, 108, interior pockets 110, dividers 112 that may divide the inner compartment into multiple sub-compartments, clips 114, hooks, hangers, clothes straps 116 and so on.

[0045] With continuing reference to Figs. 1 and 2, each of the front and rear shells 102, 104 may include a major face panel 118, 120, a top panel 122, 124, a bottom panel 126, 128, a left panel 130, 132 and a right panel 134, 136. Each of the top, bottom, left and right panels 122, 124, 126, 128 130, 132, 134, 136 defines a peripheral edge or rim 138, 140, respectively, to which a hinge element 142 and a closure mechanism are operably configured. In the example shown in Fig. 1, the front shell 102 and the rear shell 104 are pivotally connected to each other along peripheral edge portions 138, 140 of their respective left panels 130, 132 by a fabric hinge 142. Other types of hinge elements are contemplated, such as but not limited to a continuous piano hinge, or a pair of spaced-apart discrete hinges.

[0046] The luggage case 100 may include four wheel assemblies 144, such as swivel casters or fixed axle wheels, attached to the main housing compartment adjacent to the corners of the bottom panels 126, 128 of the front and rear shells 102, 104 to assist a user in moving the luggage case 100 along a support surface. In some examples, the luggage case 100 may include less than four wheel assemblies 144. The luggage case 100 may include a combination of wheel assemblies 144 and feet or other supports. Feet 145 may also be positioned on one or more sides of the luggage case 100 to allow the luggage case 100 to be supported on, but spaced

above, a support surface, such as the ground. The luggage case 100 may include a telescopic handle 146 to pull or push the luggage case 100. The luggage case 100 may further include one or more carry handles 148 to lift or otherwise move the luggage case 100.

[0047] The luggage case 100 may include a security lock 150 that in one example is located at the front top panel 122 of the luggage case 100. Other locations may be suitable. The security lock 150 may selectively engage zipper pull tabs 152, 154 associated with zipper sliders of a closure mechanism of the luggage case 100, thereby restricting the movement of the zipper sliders along a zipper track of the closure mechanism. Accordingly, a user may use the security lock 150 to restrict access by others to an enclosed inner compartment of the luggage case 100 by securing the zipper pull-tabs 152, 154 of the closure mechanism to the security lock 150.

[0048] Referring to Fig. 4A, the luggage case 100 may include a gusset 156. When the luggage case 100 is a closed and unexpanded configuration (See Fig. 1), the gusset 156 may be collapsed inside the luggage case 100. When the luggage case 100 is in a closed but expanded configuration (See Fig. 2), the gusset 156 expands and forms a portion of the exterior of the luggage case 100 thereby increasing the overall volume of the inner compartment of the luggage case 100 in accordance with the width of the gusset 156. The gusset 156 may be a single-layer construction or multiple-layer construction. In some examples, the gusset 156 may include an outer layer 158 and an inner layer 160. The outer layer 158 of the gusset 156, or if of a single-layer construction, may be formed of material similar to those used for forming the outer cover of soft side luggage case 100 including, but not limited to, natural or man-made woven or non-woven fabrics, or natural materials, such as leather. The inner layer 160 of the gusset 156 may be formed of material similar to those used for forming inner liners of a luggage case 100, such as polyester or other natural or synthetic fabric. In some examples, the gusset 156 may define in general a rectilinear shape having a constant width along its length dimension (Figs. 2 and 3). In some examples, the gusset 156' may define in part a wedge shape having two tapered ends 162, 163 (Figs. 8A and 8B).

[0049] With reference to Figs. 1, 2, 3, 4A, 4B and 6, the dual closure mechanism that allows for expandability of the luggage case 100 is described in more detail. The dual closure mechanism is operably associated with the peripheral rim or edge portion 138 of the front shell 102 and the peripheral rim or edge portion 140 of the rear shell 104. The dual closure mechanism may selectively secure the peripheral rim 138 of the front shell 102 to the peripheral rim 140 of the rear shell 104. The dual closure mechanism is operable between a fully opened configuration (Fig. 3), a first closed unexpanded configuration (Fig. 1) and a second closed expanded configuration (Fig. 2). When fully opened (Fig. 3), the dual closure mechanism allows a user to access the interior compart-

ment of the luggage case 100 by pivoting the front shell 102 and rear shell 104 relative to one another about the hinge 142.

[0050] Referring to Fig. 4A, the dual closure mechanism, in one example, may include two separate zipper mechanisms 164, 166 configured to allow the user to close the luggage case 100 in the first closed unexpanded configuration defining a first interior volume. Fig. 6 shows the dual closure mechanism, in one example, configured to allow the user to close the luggage case 100 in the second closed expanded configuration defining a second interior volume, the second interior volume being larger than the first interior volume.

[0051] With continuing reference to Figs. 1 and 4A, the first zipper mechanism 164 is utilized to allow a user to open and close the luggage case 100, and when in the closed configuration maintain the luggage case 100 in an unexpanded state. The first zipper mechanism 164 may extend along the periphery of each of the front and rear shells 102, 104 from adjacent one end of the hinge element 142 to adjacent the other end of the hinge element 142. The first zipper mechanism 164 may include a first zipper tape having a first and second longitudinal edges separable by a zipper track 168 into a first half 170 and a second half 172, at least one zipper slider 174 associated with the zipper track 168 to seam and unseam the zipper track 168, and at least one zipper pull tab 152 associated with the zipper slider 174. The first zipper mechanism 164 may include more than one oppositely directed zipper sliders 174. The first longitudinal edge, or the first half 170, of the first zipper tape is secured to the front shell 102 and is positioned adjacent to the peripheral edge 138 of the front shell 102. The second longitudinal edge, or the second half 172, of the first zipper tape is secured to the rear shell 104 and is positioned adjacent to the peripheral edge 140 of the rear shell 104.

[0052] Referring now to Figs. 2 and 6, the second zipper mechanism 166 may run along the periphery 138, 140 of each of the front and rear shell 102, 104 from adjacent one end of the hinge element 142 to adjacent the other end of the hinge element 142. The second zipper mechanism 166 may include a second zipper tape having third and fourth longitudinal edges separable by a zipper track 176 into a third half 178 and a fourth half 180, at least one zipper slider 182 associated with the zipper track 176 to seam and unseam the zipper track 176, and at least one zipper pull tab 154 associated with the zipper slider 182. The second zipper mechanism 166 may include more than one oppositely directed zipper sliders 182. The third longitudinal edge, or the third half 178, of the second zipper tape is secured to the front shell 102 and is positioned adjacent to the peripheral edge 138 of the front shell 102. The fourth longitudinal edge, or the fourth half 180, of the second zipper tape is secured, along at least a portion of its length, to an outer longitudinal edge 184 of the gusset 156. An inner longitudinal edge 186 of the gusset 156 is secured to the rear luggage shell 104 adjacent to the peripheral edge 140.

The gusset 156 allows the front shell 102 to be selectively moved away from the rear shell 104 up to a predetermined distance thereby increasing the interior space enclosed by the front and rear shells 102, 104. Note that in at least one example, the at least one zipper slider 174, 182 of each of the first and second zipper mechanisms 164, 166 are movable independent of the other, thus allowing the first and second zipper mechanisms 164, 166 to zip and unzip independent of each other. The at least one zipper slider 174 of the first zipper mechanism 164 and the at least one zipper slider 182 of the second zipper mechanism 166 may zip and unzip in the same direction or in opposite directions.

[0053] In Figs. 4A, 4B and 6, the two zipper halves 170, 172 of the first zipper mechanism 164, assembled to the front and rear luggage shells 102, 104, are shown positioned outwardly, or on the exterior side, the second zipper mechanism 166 and the associated gusset 156 for expandability. Other configurations are contemplated, and will be discussed in detail below.

[0054] Figs. 4A, 4B, 5 and 6 show one example of securing the two zipper tapes of the dual closure mechanism to the respective peripheral edges 138, 140 of the front and rear shells 102, 104. In general, coextensive first and third halves 170, 178 of the first and second zipper mechanisms 164, 166 are together secured proximate to the peripheral edge 138 of the front shell 102. The opposite longitudinal second half 172 of the first zipper mechanism 164 is secured to the peripheral edge 140 of the rear shell 104 in the exterior position. The opposite longitudinal fourth half 180 of the zipper tape of the second zipper mechanism 166 is secured to the outer longitudinal edge 184 of the gusset 156, and the opposite longitudinal edge 186 of the gusset 156 is then secured to the peripheral edge 140 of the other shell 104 interior of the second half 172 of the zipper tape of the first zipper mechanism 164. Many types of securement or attachment modes to secure the zipper tapes or gusset 156 to the respective peripheral edges 138, 140 of the shells 102, 104 are contemplated, such as sewing, bonding, stapling and so on.

[0055] Continuing with Figs. 4A, 4B, 5 and 6, the zipper tapes may be attached to the luggage case 100 shells through the use of S-shaped sheaths 188, 190. First and second S-shaped sheaths 188, 190 are elongated and may extend along the peripheral edges 138, 140 of the front and rear shells 102, 104, respectively, to facilitate the attachment of the zipper tape halves 170, 172, 178, 180 thereto. Each of the first and second S-shaped sheaths 188, 190 may be made of a flexible plastic material, and may be formed, for example, by extrusion molding. Each S-shaped sheath 188, 190 may include an outer section 192, 198, a middle section 194, 200 and an inner section 196, 202 forming the S-shape thereof. The outer section 192, 198 and middle section 194, 200 of each of the first and second sheaths 188, 190 may define an exterior slot or recess opening toward the dual closure mechanism. The inner section 196, 202 and mid-

dle section 194, 200 of each of the first and second sheaths 188, 190 may define an interior slot or recess that has a common wall with the exterior recess. The interior recess opens toward the opposite direction of the exterior recess, and in one example towards the major face 118, 120 of the shell 102, 104 to which the S-shaped sheath 188, 190 is attached. The width of the interior and exterior recesses may be the same or different as desired, and as shown in Fig. 4A, the interior recess has a larger width dimension than the exterior recess.

[0056] Referring specifically to Fig. 4A, the peripheral edge 138 of the front shell 102 and the edge portions of an inner liner 106 of the front shell 102 may form a two-layer laminate and be received within the interior recess of the first sheath 188. The longitudinal first edge the first zipper half 170 of the first zipper mechanism 164 and the third longitudinal edge of the third zipper half 178 of the second zipper mechanism 166 form a two-layer laminate and are together received within the exterior recess of the first S-shaped sheath 188. A line of stitching is secured through the laminate formed by the layers of the first zipper half 170, third zipper half 178, middle section of the sheath 194, adjacent body of the peripheral edge 138 of the front shell 102, edge of liner 106 of the front shell 102, and the inner section 196 of the sheath 188. The stitching the above laminate layer in this example is accomplished by bending the outer section 192 of the sheath 188 away from the middle section 194 to expose the top layer of the first half 170 of the first zipper mechanism 164. Other types of fasteners or securing techniques are contemplated, such as staples, adhesives, or the like.

[0057] Continuing with Fig. 4A, the inner edge 186 of the gusset 156 and the second half 172 of the first zipper tape of the first zipper mechanism 164 may together be received within the exterior recess of the second S-shaped sheath. The peripheral edge 140 of the rear shell 104 and the edge of the liner 108 of the rear shell 104 are received in the interior recess of the second sheath 190 in a manner the same as or similar to that described above with respect to the interior recess of the first sheath 188. Securement of the laminate layer formed by the second half 172 of the first zipper tape, the middle section 200 of the sheath 190, the inner edge 186 of the gusset 156, the peripheral edge 140 of the rear shell 104, the edge of the liner 108 of the rear shell 104, and the inner section 202 of the second sheath 190 is made by the stitching (or other securing technique) as described above with respect to the first S-shaped sheath 188. The outer section 192, 198 of each sheath 188, 190 may not be joined by such connection mechanism and may serve as a protective cover to prevent damages to such connection mechanism that may be caused by scuffs or abrasions, among other things. Note that the S-shaped sheaths 188, 190 may extend along the portions of the periphery 138, 140 of a luggage shell 102, 104 only in regions where it is desired for the zipper tape to be attached. It is contemplated that the liner 106, 108 in the

above example may be made up of more than one layer, depending on the construction of the luggage case 100. In addition, additional features may be sewn into the S-sheath for anchoring, such as internal securement straps 106, or the like, which may only extend a small portion of the length of the periphery 138, 140.

[0058] In continuing reference to Fig. 4A, to configure the luggage case 100 of this example in a closed and unexpanded position, the first zipper mechanism 164 is zipped, and the second zipper mechanism 166 is not zipped. Alternatively, as shown in Fig. 4B, to configure the luggage case 100 in a closed and unexpanded position, both the first and second zipper mechanisms 164, 166 are zipped. In the unexpanded configuration, the second zipper mechanism 166 and the associated gusset 156 are kept within the interior compartment enclosed by the front and rear shells 102, 104 and the zipped first zipper mechanism 164. The zipper tapes of the first and second zipper mechanism 166 may be configured in a superimposed or overlapping or overlying or coextensive configuration. Accordingly, the first zipper half 170 of the first zipper mechanism 164 is positioned above or on the outside or exterior side of the third zipper half 178 of the second zipper mechanism 166. The width of the first zipper half 170 is equal to or substantially equal to the width of the third zipper half 178 so that the zipper teeth 204, 208 for each are vertically aligned. The zipper teeth 204, 208 of the first and third zipper halves 170, 178 are shown in contact with one another in Fig. 4A, however it is contemplated that they are not in contact, but instead are spaced apart. The first and third halves 170, 178 of the zipper tapes may be made of flexible material, so zipper tapes may be separated.

[0059] The zipper tapes of the first and second zipper mechanisms 164, 166 may be configured to be coextensive and/or overlapping or overlying along their longitudinal (length) dimensions and/or transverse (width) dimensions. Figs. 4A and 4B show the first zipper half 170 and the third zipper half 178 of the first and second zipper mechanisms 164, 166 configured to substantially align vertically with each other (relative to the width dimensions of the zipper tapes). It is contemplated that there may be a difference in the widths between the first and second zipper tapes such that the zipper tracks 168, 176 are not vertically aligned, or are only vertically aligned when in the zipped configuration. For instance, in Fig. 4A the zipper teeth 210 of the fourth zipper half 180 hangs down into the interior recess of the luggage case 100, at a distance from the zipper teeth 208 of the third zipper half 178, when not secured to the matching third zipper half 178. In this configuration, the zipper teeth 210 on the fourth zipper half 180 are not in vertical alignment with the zipper teeth 206 of the second zipper half 172, nor are the engaged zipper teeth 204, 206, 208, 210 of respective zipper mechanism 164, 166 vertically aligned. Contrast the vertical alignment of the zipper mechanisms 164, 166 of the first and second zipper tapes in Fig. 4B. In the zipped configuration shown therein, the zipper

teeth 204, 206, 208, 210 in the first and second zipper tapes are engaged and vertically aligned, as well as in longitudinal alignment, and the gusset 156 is gathered and extending inwardly and away from the zipper tapes. It is contemplated that the zipper teeth 204, 206, 208, 210 of the zipper mechanisms 164, 166 may not be vertically aligned or may not be longitudinally aligned, and as such may be laterally offset from one another, if the widths of the zipper tape halves are so designed. Such offset in widths may be introduced by using zipper tapes of different dimensions, or incorporating gussets of selected and various sizes to either or both longitudinal edges of the second zipper mechanism 166, or the first zipper mechanism 164, for additional expandability, among other options.

[0060] With reference to Fig. 6, to configure the luggage case 100 in a closed and expanded state, the first zipper mechanism 164 is unzipped and the second zipper mechanism 166 is zipped. This allows the interior volume to be expanded by the gusset 156 expanding to its full width between the peripheral edges 138, 140. The first and second longitudinal halves 170, 172 of the zipper tape of the first zipper mechanism 164 are relatively narrow in width. This narrow width reduces the likelihood that the unused zipper tapes of the first zipper mechanism 164 will be snagged and/or damaged as the expanded case is handled. Also, the zipper tape of the first zipper mechanism 164 may be made of relatively stiff material (such as PU coated or plastic-impregnated fabric) to keep the zipper halves 170, 172 of the first zipper mechanism 164 from dangling or bending. Accordingly, when the first zipper mechanism 164 is unzipped, the zipper halves 170, 172 thereof may remain relatively flat or flush with the extensions of the peripheral edges 138, 140 of the front and rear shells 102, 104 of the luggage case 100, thereby reducing damage that may be caused during use.

[0061] The advantages of configuring the first and second zipper mechanisms 164, 166 and the gusset 156 as described herein in comparison to conventionally constructed expandable luggage cases, such as that shown in EP 1638427, EP 1689263, GB 2173393, TWM339233, US 6609598, US 2002148743, US 2007267262, WO 2011093984, are many. For instance, in a conventionally constructed expandable luggage case, the opening/closing zipper and the expansion zipper are usually in a side-by-side configuration whether in the expanded or unexpanded state. This may cause confusion to a user since the user may mistake the opening/closing zipper for the expansion zipper or vice versa, especially when the luggage case 100 is in the unexpanded state. In contrast to the conventional side-by-side configuration, the dual closure mechanism described herein is configured with the two zipper mechanisms 164, 166 displaced one below or under the other in a coextensive and/or overlying or overlapping manner (see Fig. 4B). It is contemplated that the terms coextensive, overlying or overlapping, in the context here, may generally refer to a same or similar

relative orientation and positioning between the two zipper tapes, such as that shown in Fig. 4B. However, each of these terms may also have different meanings, such as where "overlying" also encompasses the respective zipper teeth not necessarily being longitudinally aligned between the two zipper mechanisms when zipped (Such as Fig. 10). Or, for instance, "overlapping" may also encompass a relative positioning where the respective zipper teeth are only partially longitudinally aligned. Other distinctions between these words may become apparent through the additional description and figures herein.

[0062] Referring back to Fig. 4B, this configuration is unlikely to cause such confusion because when the luggage case 100 is in the unexpanded state only the first zipper mechanism 164 for opening and closing the luggage case 100 is exposed to a user. Likewise, when the luggage case 100 is in the closed and expanded configuration, only the second zipper mechanism 166 used to open the case is exposed to the user. The side-by-side orientation of the conventional expansion zipper may also allow the front and rear shells to more easily shift relative to one another during use (whether easily expanded or not), which is unsightly and may affect the towing of the luggage case. The side-by-side configuration also takes up space between the front and rear shells in the unexpanded configuration. As a result, in order to accommodate the expansion zipper, the front and rear shells used in making conventional expandable luggage cases may be designed and manufactured with different dimensions from those for non-expandable luggage cases, which may result in additional design and manufacturing costs. In contrast, the superimposed or overlying or overlapping or coextensive configuration of the dual closure mechanism as described herein does not necessarily take extra space along a depth dimension of the luggage case 100, and maintain a single-zipper width between shells 102, 104 when in the unexpanded configuration. Accordingly, the superimposed or overlying or overlapping or coextensive configuration for expandability as described herein provides enhanced compatibility with existing luggage designs.

[0063] Additionally, the superimposed or overlying or overlapping or coextensive configuration of the first and second zipper mechanisms 164, 166 may allow easy operation for a user as compared to a conventional side-by-side zipper configuration. Specifically, if a user desires to use a conventionally constructed expandable luggage case, the user may have to perform two zipper operations when packing a luggage case: i) an unzipping operation of the expansion zipper (second zipper mechanism 166 in the description above) to increase the overall volume of the luggage case; and ii) a zipping operation of the opening/closing zipper (first zipper mechanism 164 in the description above) of the luggage case to close the luggage case for transportation. In contrast, when packing a luggage case 100 having the dual closure configuration as described herein, the user simply selects the corresponding zipper mechanism 164, 166 for unexpanded or

expanded configuration. The other zipper mechanism 164, 166 need not be actuated (See Fig. 4A for unexpanded, and Fig. 6 for expanded). In other words, the second zipper mechanism 166 may serve as a dual-function zipper that may allow the user to achieve two goals, i.e., closing the luggage case 100 and expanding the overall volume of the luggage case 100, through one single zipping operation of the second zipper mechanism 166.

[0064] Another advantage of the dual closure zipper configuration as described herein is that it may provide additional security. The additional security is provided when both the first and second zipper closure mechanisms 164, 166 are zipped, which provides a dual-layer of zippers to penetrate before accessing the interior compartment (see Fig. 4B). Additionally, if the first and second zipper mechanisms 164, 166 are not aligned with one another, such as with respect to Fig. 10, security aspect may be further enhanced. More advantages of the superimposed or overlaying or overlapping or coextensive zipper configuration as described herein may be appreciated by one skilled in the art.

[0065] With reference to Figs. 1, 2, 3, 5 and 7, one example of the hinge element 142 of the luggage case 100 is flexible material, and has a rectilinear shape with opposing longitudinal edges 212 defining a length dimension and opposing short edges 214 defining a width dimension. Other aspect ratios of the hinge element 142 may be contemplated. The hinge element 142 of the luggage case 100 may include an outer layer 216 and an inner layer 218. The outer layer 216 may be formed of relatively durable material to withstand acting as a flexible hinge, such as plastic, metal, natural or man-made woven or non-woven fabrics, natural materials, such as leather and so on. The inner layer 218 may be formed of material similar to that used for forming inner liners 106, 108 of a luggage case 100, such as polyester or other natural or synthetic fabric. In some examples, the inner and outer layers 216, 218 may be joined together by any suitable method including, but not limited to, sewing, bonding, adhering, stapling and so on. In some examples, the hinge element 142 of the luggage case 100 may include only one layer.

[0066] The two opposing longitudinal edges 212 of the hinge element 142 may be joined to portions of the peripheral edges 138, 140 about which the front and rear shells 102, 104 are desired to pivot open and close. With respect to Figs. 1, 2 and 3, this portion is on the left panel 130 132 of each of the front and rear shells 102, 104. In some examples as shown in Figs. 5 and 7, the longitudinal edges 212 of the hinge element 142 may be secured to the peripheral edges 138, 140 by the S-shaped sheaths 188, 190 as described above for the zipper mechanisms 164, 166, or any other suitable connection method. Specifically, the longitudinal edges 212 of the hinge element 142 may be received within the exterior recesses of the first and second S-shaped sheaths 188, 190, with the peripheral edges 138, 140 of the respective

luggage shells 102, 104 being positioned in the inner recesses as noted above. The layers positioned in each recess then may be attached to the sheaths 188, 190 and the peripheral edges 138, 140 of the front and rear shells 102, 104 by any of a number of attachment mechanisms, such as sewing, bonding, stapling and so on. The outer section 192, 198 of the sheath 188, 190 is not sewn through in some instances to allow for the protection of the attachment mechanism, as described above. In some examples, the longitudinal edges 212 of the hinge element 142 may be received within the respective interior recesses of the first and second sheaths 188, 190, along with the peripheral edges 138, 140 and liners 106, 108. By so attaching the longitudinal edges 212 of the hinge element 142, the hinge element 142 would naturally bend inwardly or protrude toward the inner compartment of the luggage case 100 when the luggage case 100 is unexpanded. Such natural inward bending advantageously protects the hinge element 142 from being pulled or snagged during use.

[0067] Regarding the attachment of the gusset 156 to the luggage shell 104 and second zipper mechanism 166, in continuing reference to Figs. 1, 2 and 3, the gusset 156 may terminate at the hinge element 142, and be joined to the transverse edges 214 of the hinge element 142 by sewing, bonding, adhering, stapling, or any suitable attaching method. In some examples, the gusset 156 may terminate under the hinge element 142, terminate over the hinge element 142, or the short opposing ends 214 of the hinge element 142 may be sandwiched between the inner layer 218 and the outer layer 216 of the hinge element 142. The second zipper mechanism 166 may also be joined to the transverse edges 214 of the hinge element 142 in a similar fashion. The zipper tape of the second zipper mechanism 166 may terminate above or under the hinge element 142. The end portions of the second zipper of the second zipper mechanism 166 may be sandwiched between the inner and outer layers 216, 218 of the hinge element 142 and attached thereto by sewing, bonding, adhering, stapling, or any suitable attaching method. At each end of the zipper tape of the second zipper mechanism 166, a retainer may be provided to prevent the associated zipper slider from coming off the zipper track 168.

[0068] On the first zipper mechanism 164, unlike the second zipper mechanism 166, end portions 220 of the longitudinal edges of the zipper tape of the first zipper mechanism 164 may be unattached to the luggage shells 102, 104 or the transverse edges 214 of the hinge element 142, as best shown in Figs. 1 and 2. Such configuration would allow the zipper halves 170, 172 at the end portions of the first zipper mechanism 164 to move and adjust to accommodate the additional width added by the gusset 156 when the luggage case 100 is used in its expanded state. When the luggage is unexpanded, to prevent the end portions 220 of the first zipper mechanism 164 from being pulled or snagged during transportation, the end portions 220 of the first zipper mechanism

164 may be tucked into the space between the first zipper mechanism 164 and the second zipper mechanism 166. In some examples, the end portions 220 of the zipper tape of the first zipper mechanism 164 may be provided with Velcro® tape, snap fastener or other suitable fastener to releasably attach the end portions 220 of the zipper tape of the first zipper mechanism 164 to an outer surface of the hinge element 142 or any suitable portion of the luggage case 100.

[0069] As best shown in Figs. 2, 3, 5 and 7, the gusset 156 may be of consistent width along its length. The width of the hinge element 142 may be similar to the width of the gusset 156, or the combined width of the second zipper mechanism 166 and the gusset 156. Other width dimensions of the gusset 156 and the hinge element 142 may be contemplated. For example, with reference to Figs. 8A and 8B, the gusset 156', 156" may form in part a wedge shape with the two opposing longitudinal edges 184', 186', 184", 186" of the gusset 156', 156" converging toward the short opposing ends 214', 214" of the hinge element 142', 142". In some examples, the hinge element 142' may extend along substantially the entire peripheral edges of the front shell left panel 130' and the rear shell left panel 132' of the luggage case 100' (see Fig. 8A). The gusset 156' may have two tapered ends 162 formed along at least portions of peripheral edges of the top panels 122', 124' and the bottom panels (not shown) of the front and rear shells. In some examples, the hinge element 142" may extend along portions of the peripheral edges of the left panels 130", 132" of the front and rear shells of the luggage case 100" (see Fig. 8B). The gusset 156" may have two tapered ends 163 formed along at least portions of peripheral edges of the left panels 130", 132" and/or portions of peripheral edges of the top panels 122", 124" and the bottom panels of the front and rear shells of the luggage case 100". The width of the hinge element 142', 142" of the examples shown in Figs. 8A and 8B may be relatively narrow, and may be similar to the widths of the first and second zipper mechanisms 164, 166. When the luggage case 100, 100', 100" is in a closed and expanded configuration, the gusset 156, 156', 156" expands and forms a portion of the exterior of the luggage case 100, 100', 100" to increase the overall volume of the inner compartment of the luggage case 100, 100', 100". The gusset 156 of a constant width allows for a substantially equal expansion along the entire peripheral edges 138, 140 of the luggage shells 102, 104. In contrast, the gussets 156', 156" having tapered ends 162, 163 may allow the luggage case 100', 100" to change from little expansion on either end 214', 214" of the hinge element 142', 142" to maximum expansion opposite the hinge element 142', 142".

[0070] With reference to Fig. 9, a cross section view of a portion of a luggage case 300, incorporating a fourth example of a zipper configuration that allows for expandability, is shown in an expanded configuration. In this example, the luggage case 300 may include a first zipper mechanism 364 that is primarily for opening/closing the

luggage case 300, a second zipper mechanism 366 and a gusset 356 associated with the second zipper mechanism 366 for expandability, the second zipper mechanism 366 and the gusset 356 being arranged above or on the outside or exterior side of the first zipper mechanism 364. The first zipper mechanism 364 is unzipped, the second zipper mechanism 366 is zipped, and the gusset 356 is expanded to configure the luggage case 300 in the expanded state. The first and second zipper mechanisms 364, 366 and the gusset 356 may be attached to the peripheral edges 338, 340 of the front and rear shells 302, 304 of the luggage case 300 using S-shaped sheaths 388, 390 as described above. To configure the luggage case 300 unexpanded, the first zipper mechanism 364 is zipped, and the second zipper mechanism 366 may be zipped or unzipped. The second zipper mechanism 366 is preferably zipped when the luggage case 300 is in unexpanded configuration such that the gusset 356 forms a loop and does not flop around thereby limiting the damage to the zipper teeth of the second zipper mechanism 366.

[0071] Fig. 10 shows a cross section view of a portion of a luggage case 400 in an unexpanded state, incorporating a fifth example of a zipper configuration that allows for expandability. The luggage case 400 in this example includes a first zipper mechanism 464 that is primarily for opening/closing the luggage case 400, a second zipper mechanism 466 and a gusset 456 associated with the second zipper mechanism 466 for expandability arranged above or on the outside or exterior side of the first zipper mechanism 464. In contrast to the dual closure mechanisms described above, the luggage case 400 in this example may further include a fifth zipper half 468. The fourth zipper half 476 of the second zipper mechanism 466 may be joined to a longitudinal edge 484 of the gusset 456. The opposing longitudinal edge 486 of the gusset 456 may be joined to the peripheral edge 440 of one of the front or rear shells 404 using an S-shaped sheath 490 as described above. The third zipper half 474 of the second zipper mechanism 466 may be joined to the peripheral edge 438 of the other of the front or rear shells 402 using an S-shaped sheath 488 as described above. The fourth zipper half 476 of the second zipper mechanism 466 may selectively engage either the third zipper half 474 of the second zipper mechanism 466 or the fifth zipper half 468 depending on the configuration of the luggage case 400. To configure the luggage case 400 in an expanded state, the first zipper mechanism 464 is unzipped, the fourth first zipper half 476 of the second zipper mechanism 466 engages the third zipper half 474 of the second zipper mechanism 466 thereby allowing the front shell 402 to move away from the rear shell 404 by a distance of the gusset 456 width to increase the internal space of the luggage case 400. When in its expanded state, the luggage case 400 of this example is configured similar to that shown in Fig. 9. In continuing reference to Fig. 10, to configure the luggage case 400 of this example in an unexpanded state, the first zipper

mechanism 464 is zipped, and the fourth zipper half 476 of the second zipper mechanism 466 engages the fifth zipper half 468 thereby securely attaching the gusset 456 to the luggage case 400 and keeps the gusset 456 relatively flat when the luggage case 400 is in the unexpanded state. Alternatively, the fourth zipper half 476 of the second zipper mechanism 466 may engage the third zipper half 474 and form a loop which prevents the gusset 456 from flopping around and reduce any damage to the zipper teeth of the second zipper mechanism 466.

[0072] Fig. 11 shows a representative cross section view of a portion of a luggage case 500 in an expanded state, incorporating a sixth example of a zipper configuration that allows for expandability. In this example, the luggage case 500 includes a first zipper mechanism 564, a second zipper mechanism 566, a first gusset 556 and a second gusset 557. The first and/or second zipper mechanisms 564, 566 may extend along at least a portion of the periphery of the front and rear shells 502, 504. The first zipper mechanism 564 may include a first zipper tape having a first and second longitudinal edges separable by a zipper track into a first half 570 and a second half 572. The first longitudinal edge, or the first half 570, of the first zipper mechanism 564 may be joined to the front shell 502 and positioned adjacent to the peripheral edge 538 of the front shell 502. The second longitudinal edge, or the second half 572, of the first zipper mechanism 564 may be joined to the rear shell 504 and positioned adjacent to the peripheral edge 540 of the rear shell 504. The second zipper mechanism 566 may include a second zipper tape having a third and a fourth opposing longitudinal edges separable by a zipper track into a third half 578 and a fourth half 580. The third longitudinal edge, or the third half 578, of the second zipper mechanism 566 may be joined to one of the opposing longitudinal edges 584 of the first gusset 556, and the other one of the opposing longitudinal edges 585 of the first gusset 556 may be joined to the peripheral edge 538 of the front shell 502. The fourth longitudinal edge, or the fourth half 580, of the second zipper mechanism may be joined to one of the opposing longitudinal edges 586 of the second gusset 557, and the other one of the opposing longitudinal edges 587 of the second gusset 557 may be joined to the peripheral edge 540 of the rear shell 504. The second zipper mechanism 566 and the associated first and second gussets 556, 557 may be positioned to the interior of the first zipper mechanism 564. It is contemplated that the second zipper mechanism 566 and the associated first and second gussets 556, 557 may be positioned to the exterior of the first zipper mechanism 564.

[0073] The first and second zipper mechanisms 564, 566 and the first and second gussets 556, 557 may allow a user to configure the luggage case 500 in a closed fully expanded position, a closed half expanded position, or a closed unexpanded position depending on the user's needs. In continuing reference to Fig. 11, to configure the luggage case 500 in a closed fully expanded config-

uration, the first zipper mechanism 564 is unzipped, and the second zipper mechanism 566 is zipped. The first and second gussets 556, 557 expand thereby increasing the overall interior volume of the luggage case 500 in accordance with the combined gusset widths of the first and second gussets 556, 557. To configure the luggage case 500 in a closed half expanded position, the first zipper half 570 of the first zipper mechanism 564 may engage the fourth zipper half 580 of the second zipper mechanism 566. In this configuration, the second gusset 557 may expand and form a portion of the exterior of the luggage case 500 thereby increasing the internal volume of the luggage case 500 in accordance with the gusset width of the second gusset 557, and the first gusset 556 is kept within the interior compartment enclosed by the front and rear shells 502, 504 and the engaged first zipper half 570 of the first zipper mechanism 564 and the engaged fourth zipper half 580 of the second zipper mechanism 566. Alternatively, to configure the luggage case 500 in a closed half expanded position, the second zipper half 572 of the first zipper mechanism 564 may engage the third zipper half 578 of the second zipper mechanism 566. Accordingly, the first gusset 556 may expand and form a portion of the exterior of the luggage case 500 thereby increasing the internal volume of the luggage case 500 in accordance with the gusset width of the first gusset 556, and the second gusset 557 is kept within the interior compartment enclosed by the front and rear shells 502, 504 and the engaged second zipper half 572 of the first zipper mechanism 564 and the engaged third zipper half 578 of the second zipper mechanism 566. In some examples, the first and second gussets 556, 557 may be formed with the same width dimension, together defining the amount of expansion of the luggage case. In some examples, the first and second gussets 556, 557 may be formed with different width dimensions thereby allowing the user to use the luggage case in two different closed half expanded configurations with two different interior volumes. It is contemplated that the first and second gussets 556, 557 may be formed with constant or varying width along their respective longitudinal dimension. The first and/or second gussets 556, 557 may define at least one tapered end or a wedge shape.

[0074] To configure the luggage case 500 in a closed unexpanded position, the first zipper mechanism 564 is zipped. The second zipper mechanism 566 and the associated first and second gusset 556, 557 are kept within the interior compartment defined by the zipped first zipper mechanism 564 and the engaged front and rear shells 502, 504 of the luggage case 500. In this configuration, the second zipper mechanism 566 may be zipped. The first and second zipper mechanisms 564, 566 may be configured in an overlaying or overlying or superimposed or coextensive manner. The zipper teeth of the first and second zipper mechanisms 564, 566 may be vertically and/or longitudinally aligned. It is contemplated that the zipper teeth of the first and second zipper mechanisms 564, 566 may not be vertically aligned or longitudinally

aligned, and as such may be laterally offset from one another.

[0075] Although the security lock 150 is shown in Figs. 1, 2 and 3 positioned at the top panel of the front shell 102 of the luggage case 100, it should be appreciated that the security lock 150 may be positioned at any panel of the front and rear shells 102, 104 of the luggage case 100. In some examples, the security lock 150 may be positioned at the shell different from the shell to which the gusset 156 is joined to, as is shown in Fig. 12. In other examples, the security lock 150 may be positioned at the same shell to which the gusset 156 is joined to, as is shown in Fig. 13. Both configurations allow a user to lock the luggage case 100 in its expanded and unexpanded state. For the configuration shown in Fig. 13, longer zipper pull tabs 222 may be used for the second zipper mechanism 166 to engage the security lock 150 when the luggage case 100 operates in an expanded state.

[0076] Although a hard side luggage case is described herein as examples incorporating various zipper configurations for expandability, the dual closure mechanisms as described herein may be incorporated to a soft side luggage case, a hard side luggage case, a hybrid luggage case, or any luggage case that may desire expandability. In the example of a soft side luggage case, the panels of the soft side luggage case may be formed using a relatively soft or non-rigid or flexible material (collectively, "softer material"), such as natural or man-made woven or non-woven fabrics, or natural materials, such as leather, and so on. A supporting or reinforcing structure, such as a polypropylene ("PP") or polyethylene ("PE") sheet, may be provided between an outer cover and an inner liner of the soft side luggage case. Edge piping with metal wires included therein may be formed along the periphery of one or more panels of the luggage case to provide additional shape and structural support. The soft side luggage case may be further configured with front/rear panel pockets and similar features for additional storage space. In the example of a hard side luggage case, the front and rear shells of the hard side luggage case may each be formed as an integral piece using a relatively rigid, semi-rigid, hard, or semi-hard material (collectively "harder material"), such as acrylonitrile-butadiene-styrene ("ABS") plastic, polycarbonate plastic, an ABS/polycarbonate blend, and so on. In the example of a hybrid luggage case, the rear shell may be formed using a harder material and the front shell may be formed using a softer material, or vice versa. The shell formed with softer material may further include pockets and/or features similar to those included in soft side luggage cases.

[0077] It should be appreciated that although a luggage case is described herein as an example, the zipper configuration for expandability as described herein may be incorporated into any luggage cases, such as suitcases, duffle bags, backpacks, briefcases, laptops bags, and so on.

[0078] It should also be appreciated that although the

gusset is shown extending along the entirety or portions of four sides of the luggage case, the gusset may extend along less than four sides of the luggage case. For example, when the zipper configuration is incorporated in a computer bag with a top opening, the gusset may extend along only the top opening side and/or portions of the left and right sides of the computer bag. The gusset may be formed into any suitable shape, such as a belt with constant or varying widths, a wedge and so on. The gusset may be formed as an integral piece or as multiple sections. Other configurations of the gusset may be used depending on the specific luggage case and the construction thereof.

[0079] It should also be appreciated that the gusset may be constructed as a single layer structure, or a combination of an outer layer, an inner layer and/or additional layers, or any other suitable fashion. The gusset may also include additional structural elements. A reinforcing structure, such as a PE or PP panel or a metal wire, may be contained inside the pocket formed by an outer layer and an inner layer of the gusset to provide additional structural support and to enhance shape integrity when the luggage case operates in an expanded state. In some examples, the gusset may be formed as panel structures, such as PE, PP, ABS or polycarbonate plastic sheet(s) or plate(s), with or without additional fabric layers. The gusset may be joined to either the rear shell of the luggage case as shown in Fig. 3 or the front shell of the luggage case.

[0080] It should be noted that while the zipper tape of the first primary zipper mechanism is shown above substantially in vertical alignment (relative to the width dimensions of the zipper mechanisms) with the zipper tape of the second zipper mechanism, the zipper tape of the first primary zipper mechanism may be considered overlapping or overlying or superimposed over the zipper tape of the second zipper mechanism or coextensive with the zipper tape of the second zipper mechanism even though there may be an offset between the two. Alternatively, the zipper tape of the second primary zipper mechanism may overlap or overlie or be superimposed over or coextensive with the zipper tape of the first zipper mechanism, with or without an offset between the two. The zipper tapes of the first and second zipper mechanisms may be configured to be coextensive along their longitudinal (length) dimensions and/or transverse (width) dimensions. The first and second zipper mechanisms may commonly extend along a portion or the entirety of the peripheral edges of the front and rear shells of the luggage case.

[0081] Although the longitudinal edges of the first zipper mechanism and the longitudinal edges of the second zipper mechanism and the associated gusset are all shown received in the respective exterior recesses of the first and second S-shaped sheaths, the longitudinal edges may all be received in the interior recesses of the first and second S-shaped sheaths. It should be appreciated that the longitudinal edges of the first zipper mechanism

may be received within the exterior recesses of the first and second sheaths while the longitudinal edges of the second zipper mechanism and the associated gusset may be received in the interior recesses of the first and second sheaths, or vice versa. Similarly, the longitudinal edges of the hinge element may be received within either the interior or the exterior recesses of the first and second sheaths.

[0082] It should be noted that all directional and/or dimensional references (e.g., upper, lower, upward, downward, left, right, leftward, rightward, top, bottom, above, below, front, back, rear, forward, backward, rearward, inner, outer, inward, outward, vertical, horizontal, clockwise, counterclockwise, length, width, height, depth, and relative orientation) are only used for identification purposes to aid the reader's understanding of the implementations of the disclosed invention(s), and do not create limitations, particularly as to the position, orientation, use relative size or geometry of the invention(s) unless specifically set forth in the claims.

[0083] 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 a fixed relation to each other.

[0084] In some instances, components are described with reference to "ends" having a particular characteristic and/or being connected with another part. However, those skilled in the art will recognize that the disclosed invention(s) is not limited to components that terminate immediately beyond their points of connection with other parts. Thus, the term "end" should be interpreted broadly, in a manner that includes areas adjacent, rearward, forward of, or otherwise near the terminus of a particular element, link, component, part, member or the like. In methodologies directly or indirectly set forth herein, various steps and operations are described in one possible order of operation, but those skilled in the art will recognize that steps and operations may be rearranged, replaced, or eliminated without necessarily departing from the spirit and scope of the present invention. It is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative only and not limiting. Changes in detail or structure may be made that are within the scope of the appended claims.

Claims

1. A luggage item (100) including opposing portions (102, 104) and including a zipper configuration, the zipper configuration comprising:

a first zipper mechanism (164) operably engaging a peripheral edge (138, 140) of each of the

opposing portions (102, 104) and configured to selectively zip and unzip;

a second zipper mechanism (166) operably engaging a peripheral edge (138, 140) of each of the opposing portions (102, 104) and configured to selectively zip and unzip;

the first zipper mechanism (164) and the second zipper mechanism (166) arranged in an overlapping, coextensive or overlying configuration; the first and second zipper mechanisms (164, 166) configured to zip and unzip independent of each other;

wherein the second zipper mechanism (166) includes a gusset (156) connecting the second zipper mechanism (166) and one of the peripheral edges (138, 140) of the opposing portions (102, 104) to thereby operably engage the peripheral edge (138, 140) of the opposing portion (102, 104); and

wherein the opposing portions (102, 104) are maintained in a closed unexpanded configuration when the first zipper mechanisms (164) is zipped, and are maintained in a closed and expanded configuration when the second zipper mechanisms (166) is zipped.

2. The luggage item (100) according to claim 1, wherein:

the first zipper mechanism (164) includes opposing longitudinal edges;

the second zipper mechanism (166) includes opposing longitudinal edges;

one of the opposing longitudinal edges of the first zipper mechanism (164) and one of the opposing longitudinal edges of the second zipper mechanism (166) operably engage one of the peripheral edges (138, 140) of the opposing portions (102, 104); and

the other of the opposing longitudinal edges of the first zipper mechanism (164) and the other of the opposing longitudinal edges of the second zipper mechanism (166) operably engage the other of the peripheral edges (138, 140) of the opposing portions (102, 104).

3. The luggage item (100) according to any of claims 1 or 2, wherein:

the gusset (156) and one of the first or second zipper mechanisms (164, 166) are arranged in an aligned configuration.

4. The luggage item (100) according to any of claims 1 to 3, wherein:

the gusset (156', 156'') comprises at least in part a wedge shape.

5. The luggage item (100) according to any of claims 1 to 4, wherein:

one of the first or second zipper mechanisms (164, 166) is configured to be exterior to the other of the first or second zipper mechanisms (164, 166).

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6. The luggage item (100) according to any of claims 1 to 5, wherein:

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the first zipper mechanism (164) defines a row of engaged first zipper teeth (204, 206); the second zipper mechanism (166) defines a row of engaged second zipper teeth (208, 210); the first zipper teeth (204, 206) and the second zipper teeth (208, 210) are longitudinally and/or vertically aligned, or are not longitudinally or vertically aligned.

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7. The luggage item (100) according to claim 6, wherein:

the first zipper mechanism (164) further includes at least one first zipper slider (174) movable along the first zipper teeth (204, 206); the second zipper mechanism (166) further includes a second zipper slider (182) movable along the second zipper teeth (208, 210); and the at least one first zipper slider (174) and the at least one second zipper slider (182) are configured to zip and unzip in a same direction or in opposite directions.

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8. The luggage item (100) according claim 7, wherein:

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at least one of the first and second zipper mechanisms (164, 166) further comprises an additional oppositely directed zipper slider (174, 182).

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9. The luggage item (100) according to any of claims 7 or 8, wherein:

the luggage item (100) further comprises a luggage lock (150) configured to selectively restrict movement of at least one of the at least one first zipper slider (174) and/or the at least one second zipper slider (182) along the respective zipper teeth (204, 206, 208, 210).

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10. The luggage item (100) according to any of claims 1 to 9 further comprising:

a hinge element (142, 142', 142'') preferably having a width dimension.

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11. The luggage item (100) according to claim 10,

wherein:

the width dimension of the hinge element (142, 142', 142'') is preferably configured to be similar to a width dimension of the gusset (156), or similar to a width dimension of one of the first or second zipper mechanisms (164, 166).

12. The luggage item (100) according to any of claims 1 to 11, wherein:

the luggage item (100) includes at least one portion (102, 104) at least in part defined by a relatively rigid shell.

13. The luggage item (100) according to any of claims 1 to 12, wherein:

the luggage item (100) includes at least one portion (102, 104) at least in part defined by a relatively flexible structure.

14. The luggage item (500) according to any of claims 1 to 13, wherein:

the luggage item (500) further comprises an additional gusset (557); the second zipper mechanism (566) includes two zipper halves (578, 580); each of the gussets (556, 557) is positioned between one of the two zipper halves (578, 580) of the second zipper mechanism (566) and respective opposing portions (502, 504) of the luggage item (500).

15. The luggage item (100) according to any of the preceding claims, wherein:

the luggage item is a suitcase or backpack, or briefcase, or duffle or computer bag.

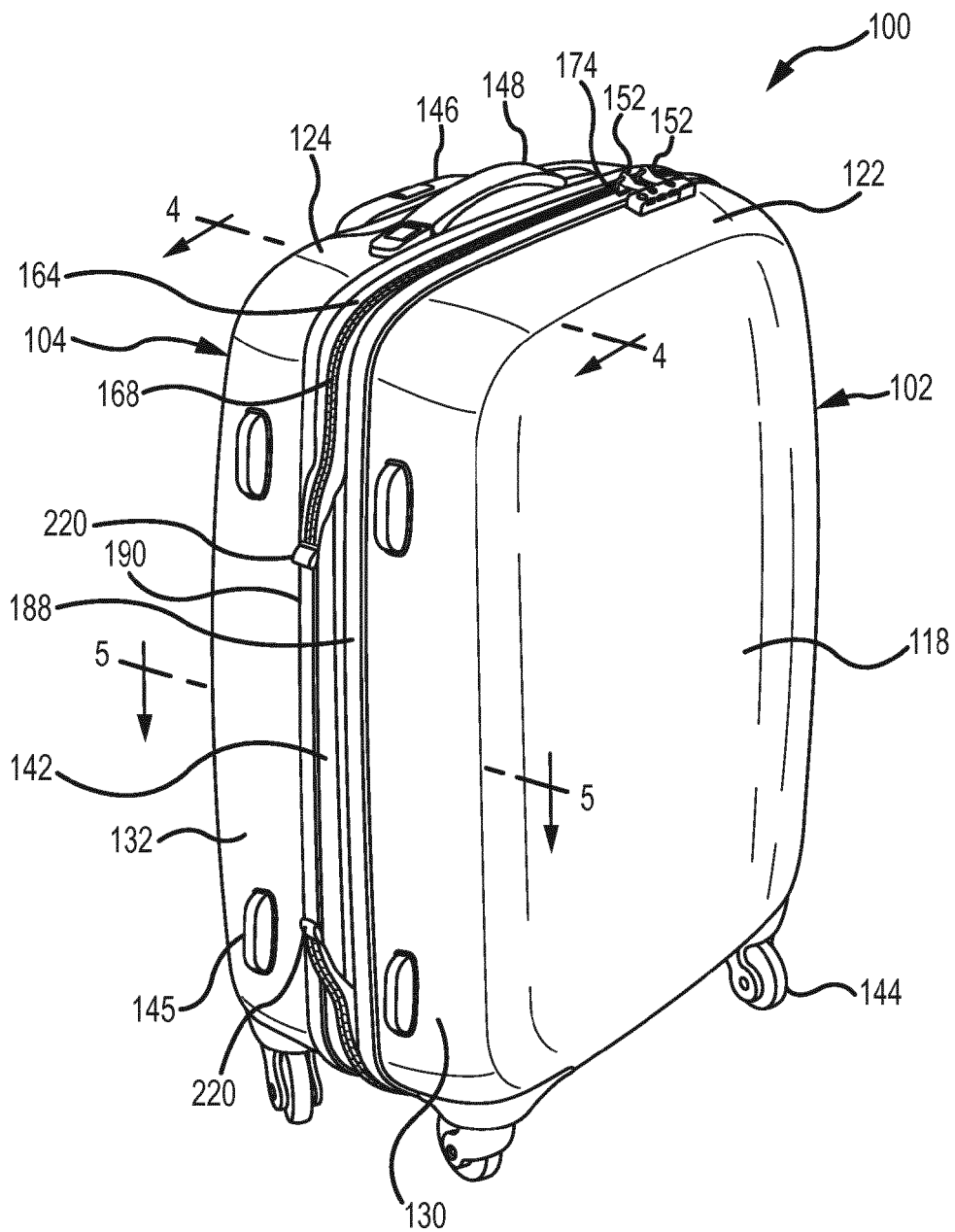


FIG.1

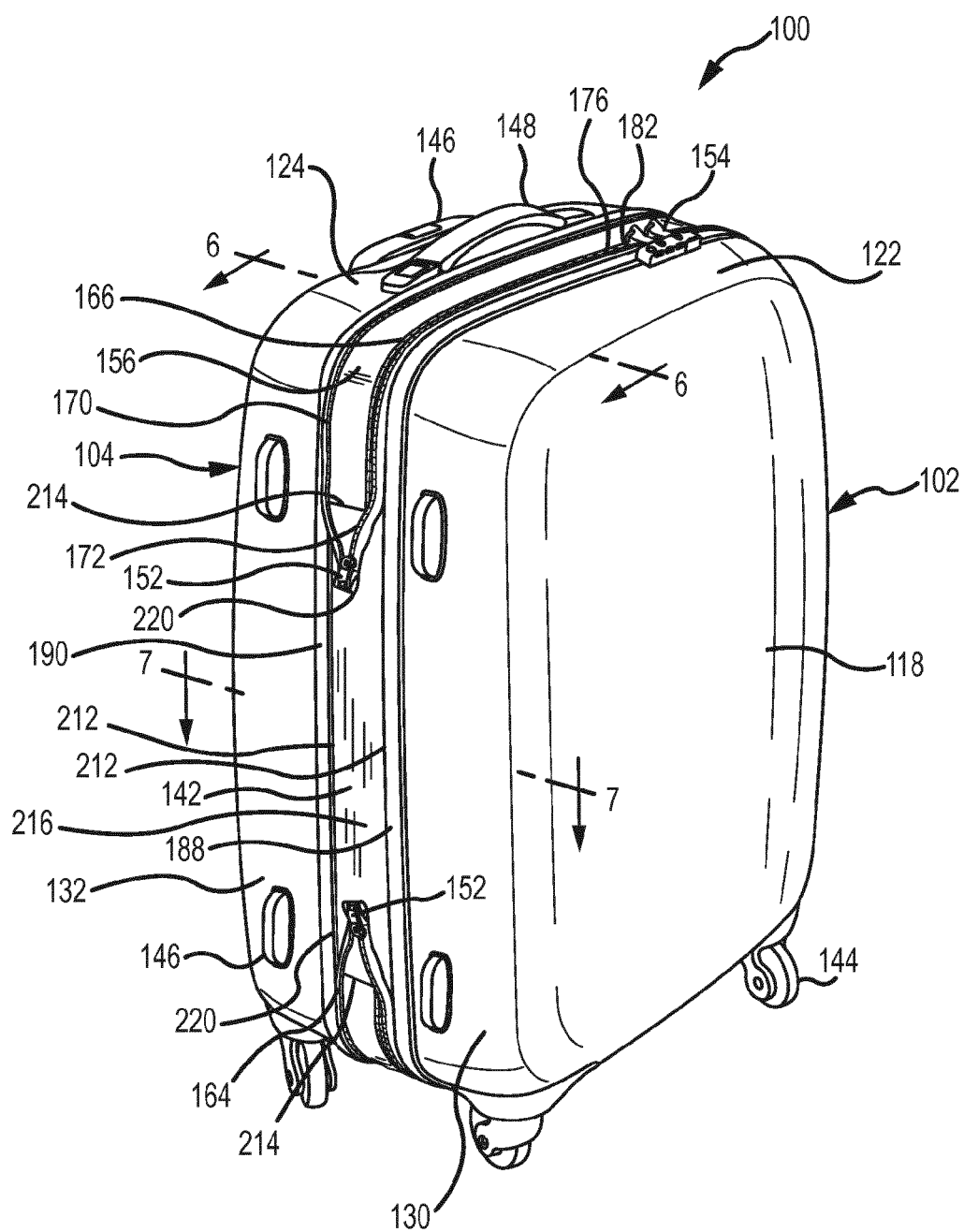
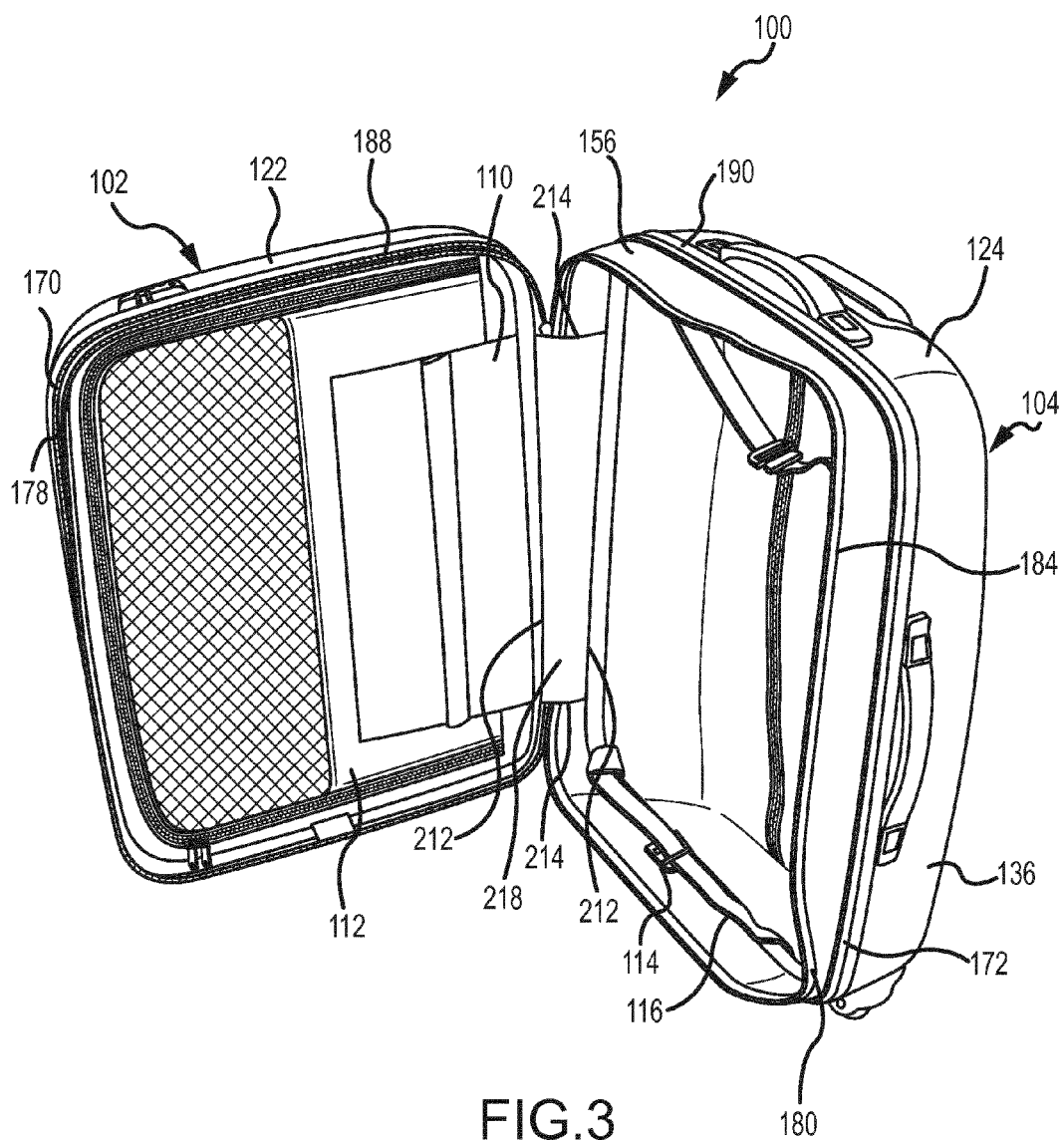


FIG.2



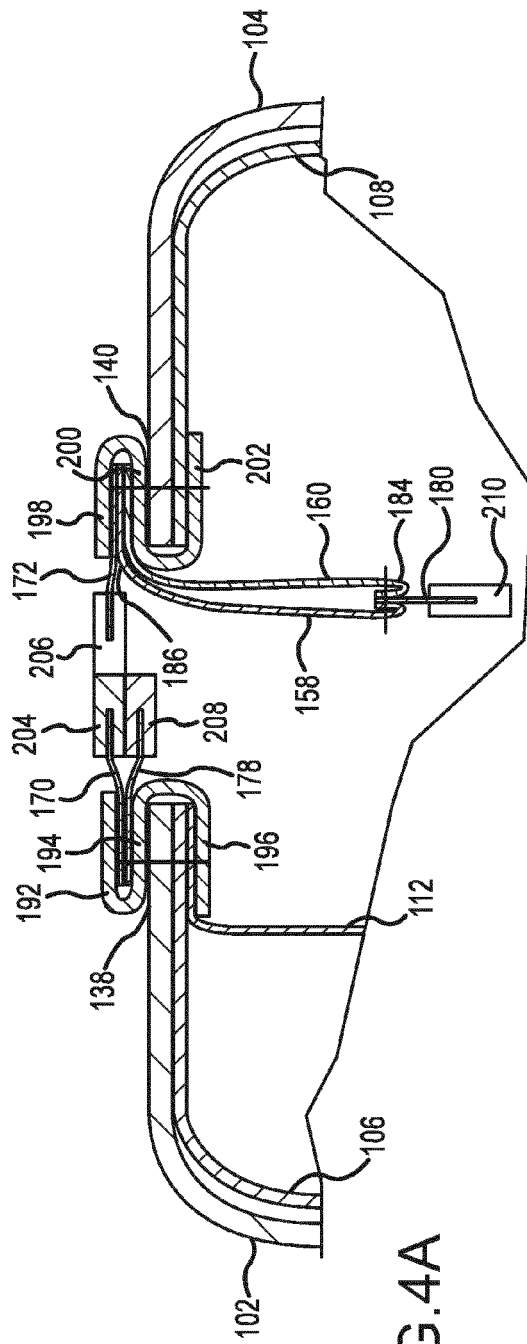


FIG. 4A

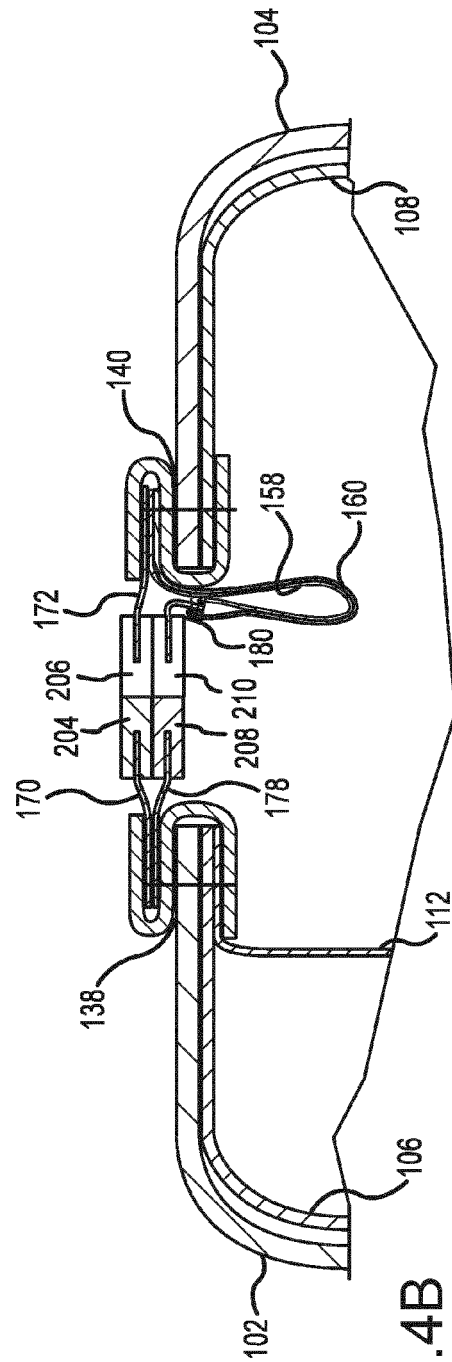
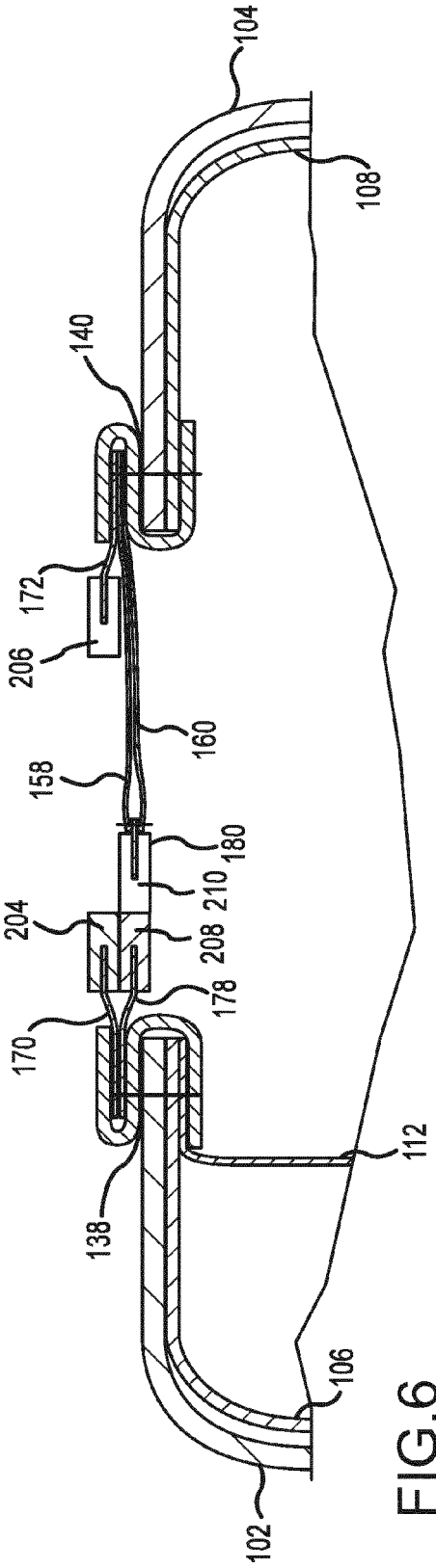
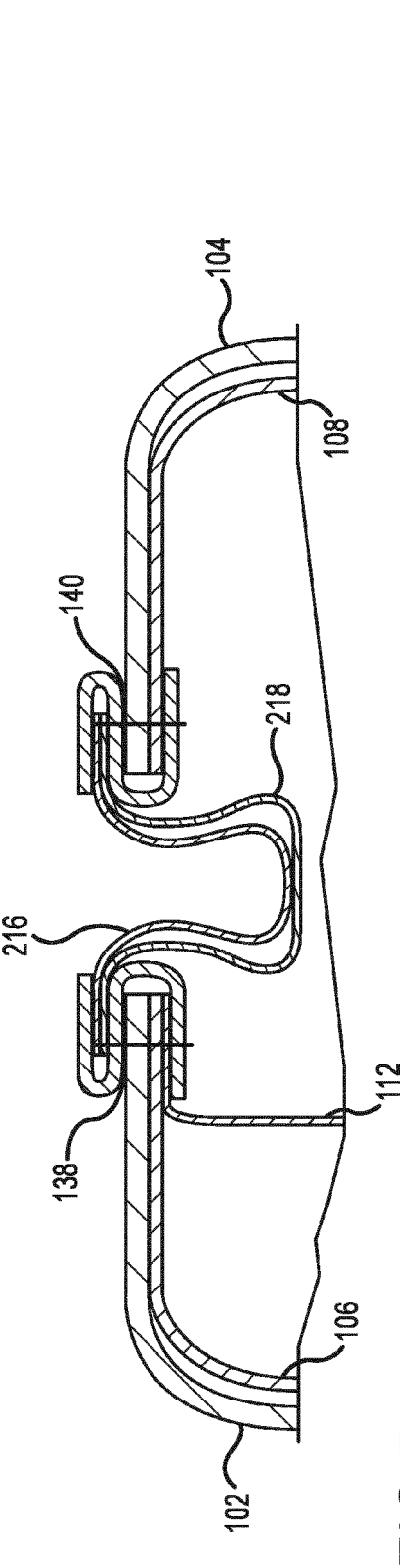


FIG. 4B



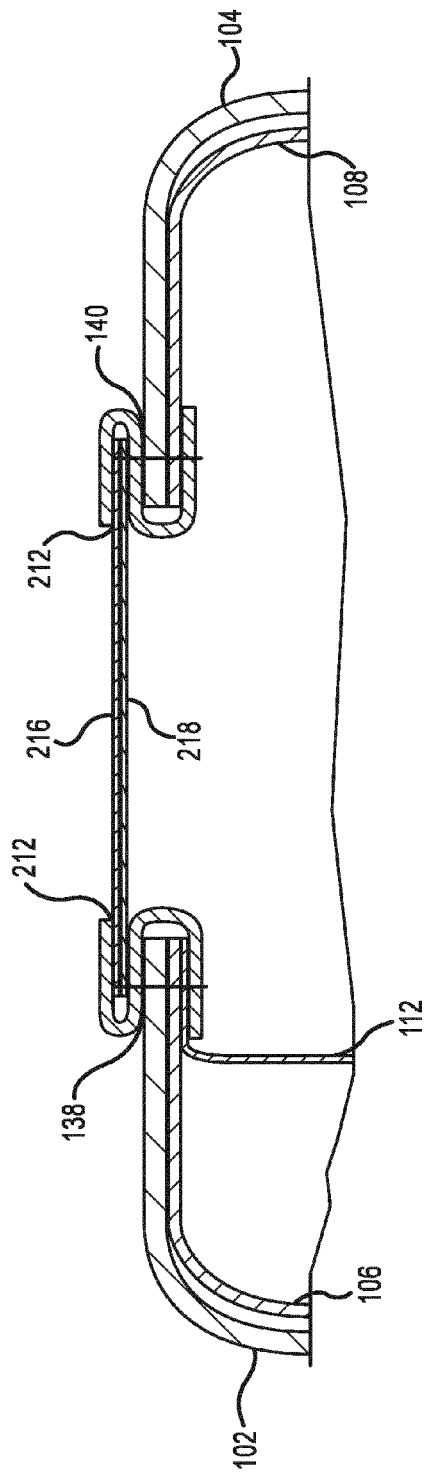


FIG. 7

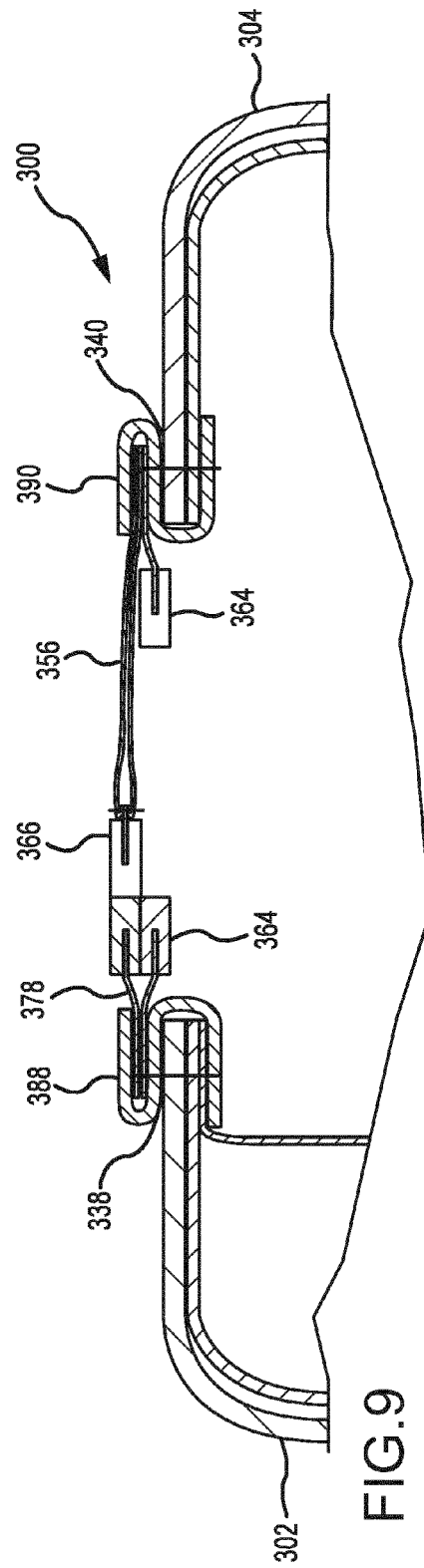


FIG. 9

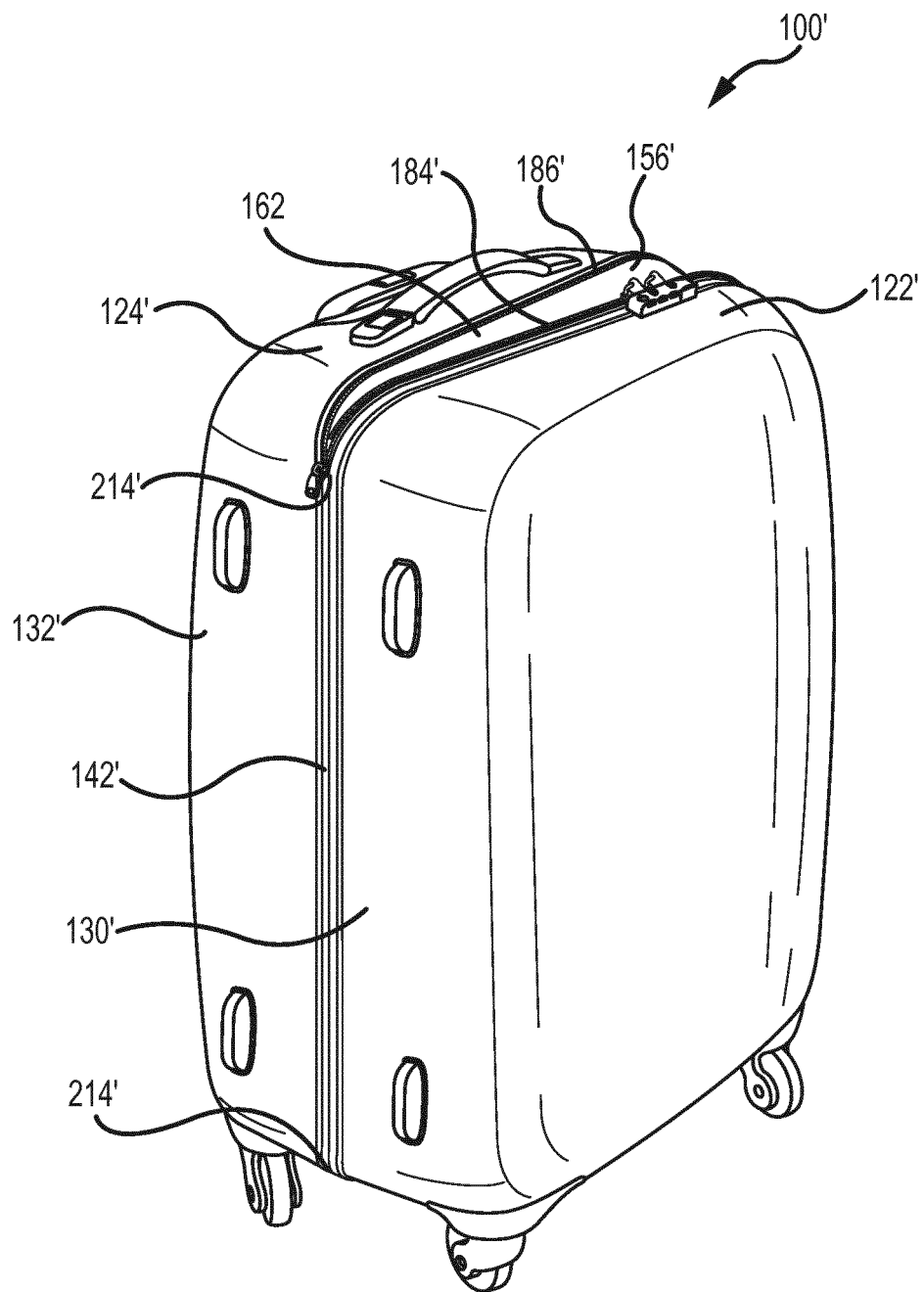


FIG. 8A

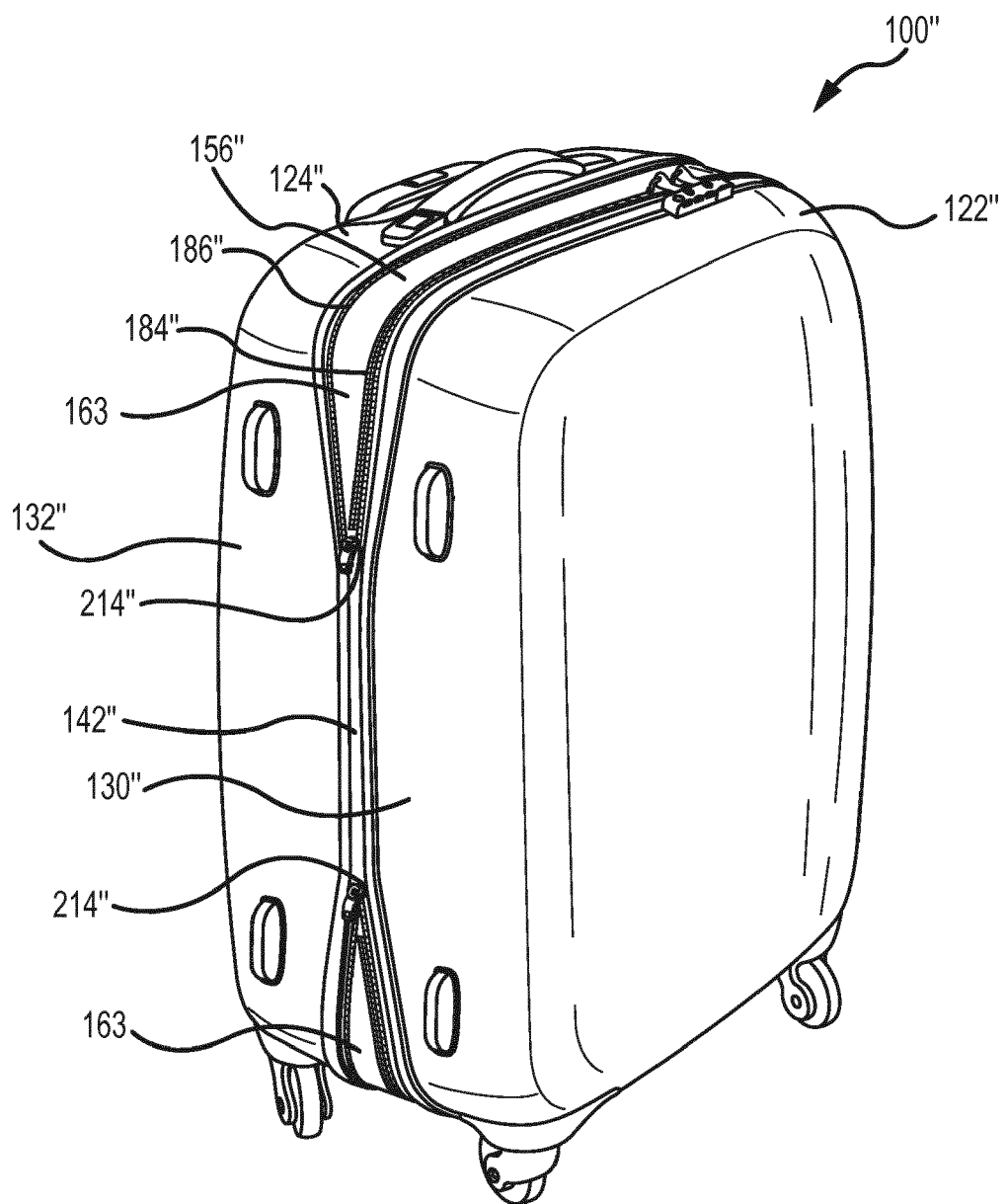


FIG. 8B

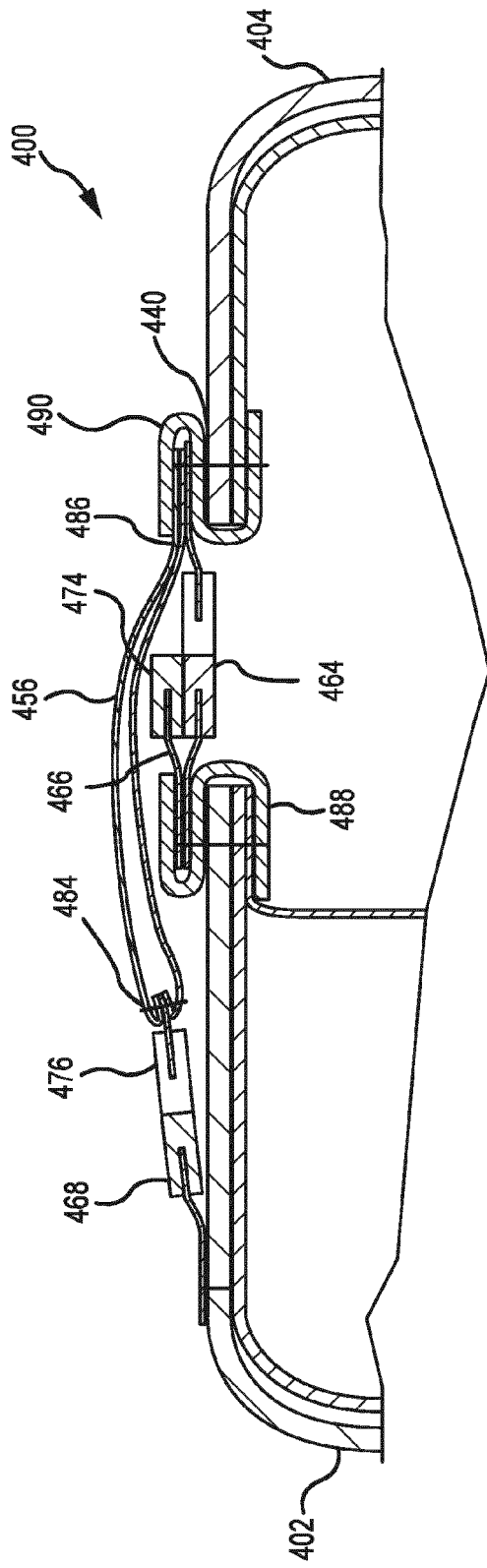


FIG. 10

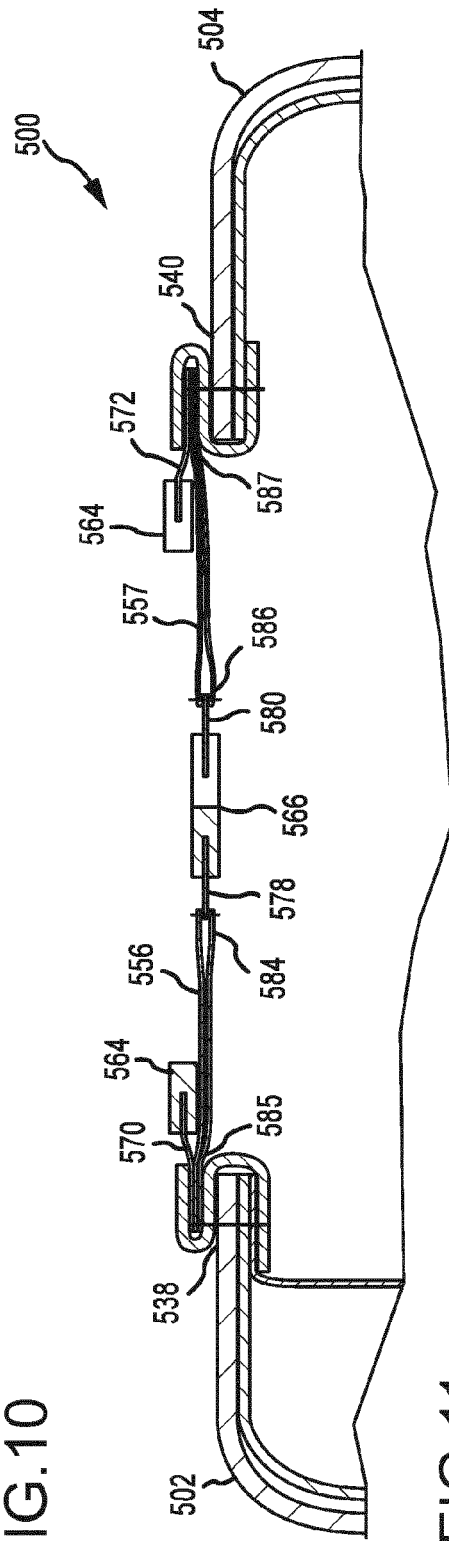


FIG. 11

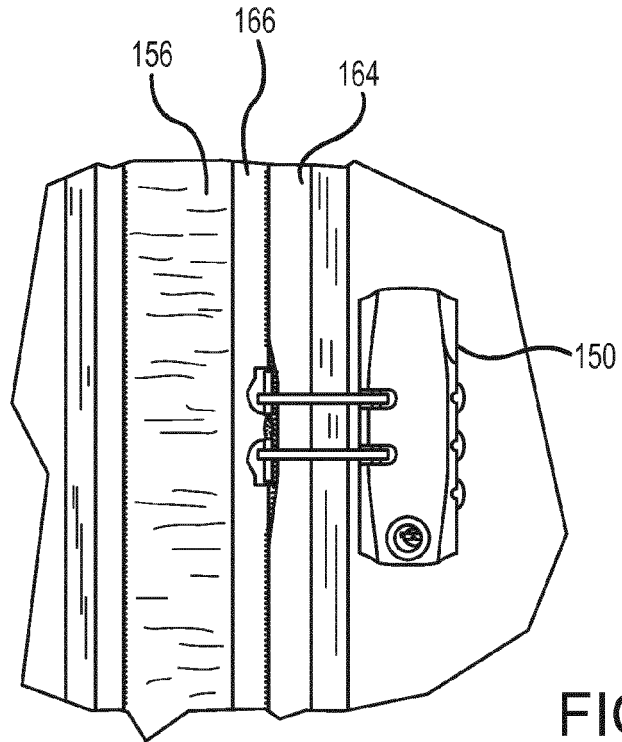


FIG.12

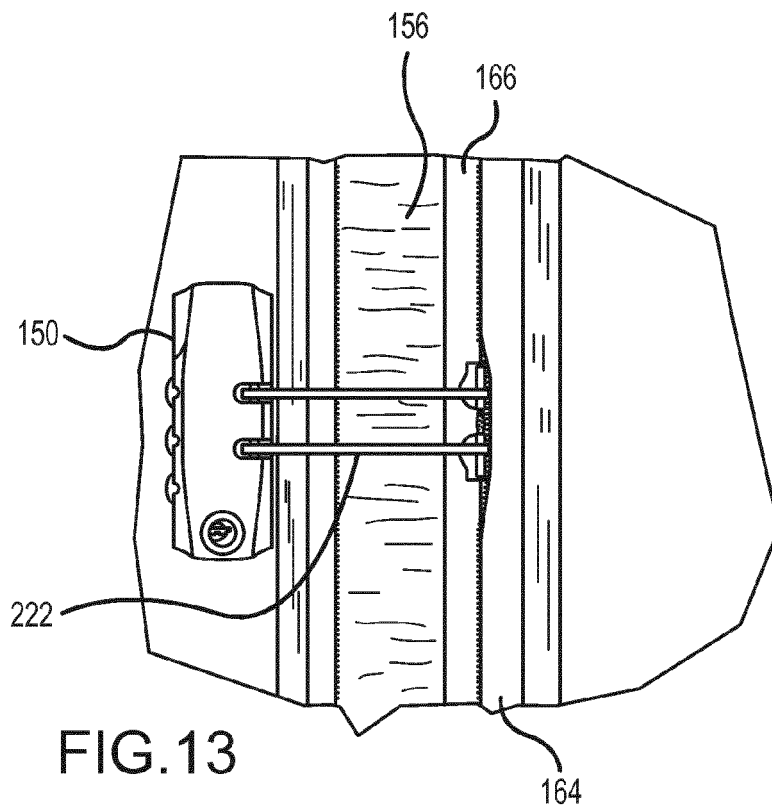


FIG.13



EUROPEAN SEARCH REPORT

 Application Number
EP 12 18 5102

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Place of search The Hague		Date of completion of the search 22 February 2013	Examiner Ehrsam, Sabine
CATEGORY OF CITED DOCUMENTS T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document & : member of the same patent family, corresponding document			

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