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(54) **FRAME STRUCTURE FOR A SOFTSIDE LUGGAGE ARTICLE**

(57) A softside luggage article (100) is provided. The luggage article may include a first panel, a frame supporting the first panel, and a carry handle. The frame may include a first structural member extending along a first edge of the first panel, a second structural member extending along a second edge of the first panel, and two

or more cross braces connected to and extending between the first and second structural members. The carry handle may include opposing first and second end portions. Each end portion of the carry handle may be coupled to one of the two or more cross braces

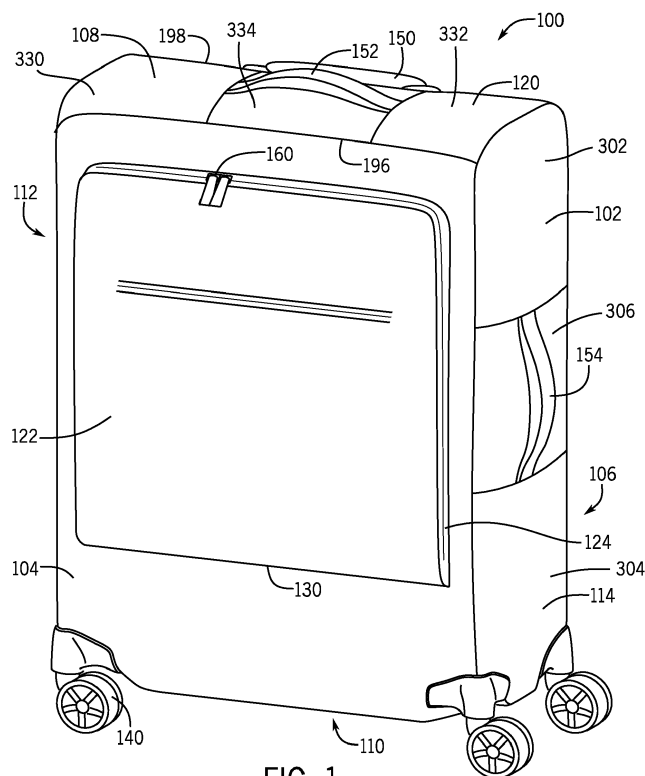


FIG. 1

Description

TECHNICAL FIELD

[0001] The present disclosure relates generally to luggage articles, and more specifically to a frame structure for a softside luggage article.

BACKGROUND

[0002] Some softside luggage cases include a frame structure or arrangement to support a luggage case housing. Traditional frame configurations, however, often include solid or one-piece top and bottom pan assemblies, which may add unnecessary weight to the luggage case, and may limit design options. Traditional frame configurations may also include frame structures providing insufficient rigidity to the luggage case. For example, some frame structures may allow undesirable deformation of the luggage case when a user lifts the luggage case from a carry handle.

[0003] It is therefore desirable to provide an improved luggage case, and more specifically an improved frame structure 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 EP2363037B1, EP2421402A1, EP2787857B1, GB2440206B, GB2441580B, GB2477087A, GB2545036A, US1155475A, US2806563A, US3447648A, US4813520A, US6408997B1, US6926129B2, US7207577B2, US7984797B1, US8118145B1, US8662268B2, US8727083B2, US8851144B2, US9220326B2, US9675154B2, US20040079604A1, US20140311844A1, US20160088915A1, US20160345694A1, and WO2011033218A1.

SUMMARY

[0005] The present disclosure provides a frame structure for a softside luggage article, as described below and defined in the accompanying claims. The frame structure may include a split top pan assembly having a pair of structural members and one or more braces connected to and extending between the structural members. A carry handle may be attached to the braces. Additionally or alternatively, the frame structure may include one or more panel frames, such as a top panel frame and/or a side panel frame, each including a pair of structural elements extending along opposing edges of the luggage article and one or more braces connected to and extending between the structural elements. The structural members or elements may be pan structures or elongate rods or pulltrusions.

[0006] Embodiments of the present disclosure may include a softside luggage article. The luggage article may include a first panel, a frame supporting the first panel,

and a carry handle. The frame may include a first structural member extending along a first edge of the first panel, a second structural member extending along a second edge of the first panel, and two or more cross braces connected to and extending between the first and second structural members. The carry handle may include opposing first and second end portions. Each end portion of the carry handle may be coupled to one of the two or more cross braces.

[0007] In some embodiments, the luggage article may include a reinforcing strap coupled to an end portion of the carry handle. The reinforcing strap may extend to and couple with an edge of the first panel. The first panel may be defined by two or more fabric panels at least partially overlying one another. The reinforcing strap may be positioned at least partially between the two or more fabric panels. The reinforcing strap may be formed as a single strap.

[0008] In some embodiments, the first panel may be a top panel or a side panel of the luggage article.

[0009] In some embodiments, the luggage article may include a second panel and a split pan supporting the second panel. The split pan may include at least two cross members extending between opposing first and second pan members. The second panel may be a top panel. The luggage article may include a second carry handle including opposing first and second end portions. Each end portion of the second carry handle may be coupled to one of the at least two cross members.

[0010] In some embodiments, the frame may include a pair of end rods interconnecting end portions of the first and second structural members. The luggage article may include a pair of reinforcing straps. Each reinforcing strap may be coupled to an end portion of the carry handle and extending to and coupled with one of the pair of end rods.

[0011] In some embodiments, each of the first and second structural members may be an elongate rod, a pulltrusion, or a pan member.

[0012] In some embodiments, the first and second structural members may extend vertically between a top panel frame and a bottom pan assembly. The luggage article may include a plurality of wheel assemblies attached to the bottom pan assembly.

[0013] Embodiments of the present disclosure may include a softside luggage article. The luggage article may include a top panel and a frame supporting the top panel. The frame may include a first pan member extending along a front edge of the top panel, a second pan member extending along a rear edge of the top panel, and two or more cross braces extending between the first and second pan members. The two or more cross braces may limit movement of the first and second pan members relative to each other to fix the distance between the front and rear edges of the top panel.

[0014] In some embodiments, the luggage article may include a top carry handle including opposing first and second end portions. Each end portion of the top carry handle may be coupled to one of the two or more cross

braces.

[0015] Embodiments of the present disclosure may include a softside luggage article. The luggage article may include a frame structure and a carry handle coupled to the frame structure. The frame structure may include a top panel frame, a bottom pan assembly, a pair of elongate rods connected to and extending between the top panel frame and the bottom pan assembly, and one or more cross braces connected to and extending between the pair of elongate rods. The one or more cross braces may be positioned along the lengths of the elongate rods between the top panel frame and the bottom pan assembly. The carry handle may be coupled to the one or more cross braces.

[0016] In some embodiments, the carry handle may include opposing end portions coupled to first and second cross braces. The luggage article may include first and second handle reinforcing straps. The first handle reinforcing strap may extend between the first cross brace and the top panel frame. The second handle reinforcing strap may extend between the second cross brace and the bottom pan assembly. The first and second cross braces may be received within respective sleeves. The first and second handle reinforcing straps may be stitched to the sleeves. The first handle reinforcing strap may be stitched to the top panel frame. The second handle reinforcing strap may be stitched to the bottom pan assembly. The one or more cross braces may be connected to the elongate rods by connectors. The pair or elongate rods may each extend generally vertically. The one or more cross braces may extend laterally between the pair of elongate rods. The one or more cross braces may extend orthogonally to the pair of elongate rods. The luggage article may include a plurality of wheel assemblies connected to the bottom pan assembly. The luggage article may include a tow handle including at least one tube connected and extending between the top panel frame and the bottom pan assembly. The luggage article may include an outer fabric cover positioned at least partially over the frame structure. At least one of the elongate rods may include two or more elements connected together.

[0017] Alternatively, embodiments of the present disclosure may include a frame structure for a softside luggage article. The frame structure may include a split pan assembly including a first pan member and a second pan member, and a plurality of cross braces connected to and extending between the first and second pan members. The first pan member may extend along a first edge of the frame structure. The second pan member may extend along a second edge of the frame structure. The plurality of cross braces may include a pair of end rods interconnecting end portions of the first and second pan members, and one or more intermediate cross braces positioned part way along the first and second pan members and extending therebetween.

[0018] In some embodiments, the split pan assembly may be a top pan assembly. The luggage article may

include an opposing bottom pan assembly. A plurality of elongate members may extend between the bottom pan assembly and the first and second pan members. The luggage article may include a carry handle coupled to one or more of the cross braces, and preferably to the one or more intermediate cross braces. The carry handle may be located between the first and second pan members. The one or more cross braces may be received within respective sleeves. The carry handle may be attached to the sleeves. The carry handle may be attached to an outer fabric cover. Each of the first and second pan members may include an injection molded planar pan member. A plurality of wheel assemblies may be connected to the frame structure.

[0019] 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

[0020] 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 examples 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 an isometric view of a softside luggage case; FIG. 2 is an isometric view of the luggage case of FIG. 1 with an outer fabric layer removed to illustrate an internal frame structure;

FIG. 3 is an enlarged, fragmentary isometric view of the luggage case of FIG. 2 and showing a top carry handle attached to a top panel frame of the internal frame structure;

FIG. 4 is an enlarged, fragmentary isometric view of the luggage case of FIG. 2 and showing a side carry handle attached to a side panel frame of the internal frame structure;

FIG. 5 is an elevation view of a side panel of the luggage case of FIG. 1 and showing portions of the internal frame structure of FIG. 2 as well as the connection details of the side carry handle to the side panel frame in dash for illustration purposes;

FIG. 6 is a fragmentary cross-sectional view of the side panel of FIG. 5 taken along line 6-6 of FIG. 5;

FIG. 7 is a plan view of a top panel of the luggage case of FIG. 1 and showing portions of the internal

frame structure of FIG. 2 as well as the connection details of the top carry handle to the top panel frame in dash for illustration purposes; and
FIG. 8 is a fragmentary cross-sectional view of the top panel of FIG. 7 taken along line 8-8 of FIG. 7.

DETAILED DESCRIPTION

[0021] According to the present disclosure, a frame structure is provided that is configured to support an outer fabric housing of a luggage article. The frame structure includes a bottom pan assembly, a top panel frame, and at least one side panel frame extending between the bottom pan assembly and the top panel frame. At least one of the top panel frame and the side panel frame may include a pair of structural members extending along opposing edges of the luggage article. One or more cross braces may be connected to and extend between the pair of structural members. A carry handle, such as a side carry handle or a top carry handle, may be coupled to the one or more cross braces, such as to a pair of cross braces.

[0022] According to an embodiment of the present disclosure, illustrated in FIG. 1, a luggage article 100 includes a housing 102 formed from a plurality of walls or panels (hereinafter "panels" for the sake of convenience without intent to limit) defining an internal storage volume in which to carry a user's belongings. In one example, the housing 102, which may be referred to as an outer fabric layer, may be formed from opposing front and rear panels 104, 106 and a plurality of side panels extending between the front and rear panels 104, 106. For example, the luggage article 100 may include opposing top and bottom panels 108, 110 and opposing left and right side panels 112, 114 that collectively define the housing 102 in combination with the front and rear panels 104, 106. The various panels may be configured or arranged to provide a desired size and shape of the housing 102. For example, the various panels may be sized and shaped such that the luggage article 100 is taller than it is wide, wider than it is deep, or the like.

[0023] With continued reference to FIG. 1, the luggage article 100 may include a base 120 and a lid 122 defined by a line of separation 124. The luggage article 100 may be transformable between different configurations, such as between a closed configuration and an open configuration. For example, the lid 122 may be hingedly attached to the base 120 by a hinge structure 130 or similar mechanism to allow selective positioning of the lid 122 relative to the base 120. In such examples, the lid 122 may be pivoted towards or away from the base 120 to close or open the luggage article 100, respectively. The lid 122, which may be referred to as a first luggage portion or section, may be defined by one or more panels. For example, the lid 122 may be defined by the front panel 104, either entirely or in part. In some examples, the lid 122 may be defined by the front panel 104 and at least portions of the top, bottom, left side, and/or right side

panels 108, 110, 112, 114 such that the lid 122 includes sidewall portions. In like manner, the base 120, which may be referred to as a second luggage portion or section, may be defined by one or more panels. For instance, the base 120 may be defined by the rear panel 106, either entirely or in part. Similar to the lid 122, the base 120 may be defined by the rear panel 106 and at least portions of the top, bottom, left side, and right side panels 108, 110, 112, 114 such that the base 120 includes sidewall portions. In such examples, the sidewall portions of the base 120 may define the top, bottom, left side, and right side panels 108, 110, 112, 114 in combination with the sidewall portions of the lid 122. In some examples, the base 120 may be defined by a portion of the front panel 104. The hinge structure 130 may be a fabric strip, a piano hinge, a living hinge, spaced-apart discrete hinges, a zipper structure, an articulating joint made of elastomeric material, or other suitable structure arranged to allow selective positioning of the lid 122 relative to the base 120 from fully closed to fully open.

[0024] The luggage article 100 illustrated in FIG. 1 is an upright spinner case, such as a softside luggage case, but may be any type of luggage article 100, such as a purse, a bag, a container, a backpack, etc. In like manner, the housing 102 of the luggage article 100 may be formed at least partially from softside material, entirely from softside material, or in a hybrid construction of softside material and hardside material. In some examples, the luggage article 100 may include one or more support members 140 to support the luggage article 100 against a support surface (e.g., against the ground). The support members 140, which may be a foot, a fixed wheel assembly, a spinner wheel assembly, or any combination thereof, may be associated with any suitable panel, such as connected to at least the bottom panel 110. In some examples, the luggage article 100 may also include one or more carry handles and/or a retractable tow handle 150. For example, as shown in FIG. 1, the luggage article 100 may include a top carry handle 152 coupled to the top panel 108 and/or a side carry handle 154 coupled to one of the left and right side panels 112, 114 (e.g., to the right side panel 114). With continued reference to FIG. 1, the retractable tow handle 150 may be extendable from the top panel 108 (such as from adjacent the intersection between the top and rear panels 108, 106) of the luggage article 100.

[0025] The luggage article 100 may include a closure mechanism 160 to selectively secure the lid 122 and the base 120 together. The closure mechanism 160 may be positioned along or adjacent the line of separation 124 between the lid 122 and the base 120 (such as along a periphery of the lid 122) to allow selective actuation for opening and closing of the luggage article 100. In an open configuration, the closure mechanism 160 is disengaged along substantially the entire length of the line of separation 124, thereby allowing the lid 122 and the base 120 to pivot relative to each other to any amount from partially open to fully open. In a closed configuration, the closure

mechanism 160 is engaged along at least a portion of the length of the line of separation 124 to limit relative movement between the lid 122 and the base 120. The closure mechanism 160 may be any suitable closure device or system. For instance, the closure mechanism 160 may be a zip closure or attachment, though other types of closure devices are contemplated, including one or more latches spaced along the line of separation 124. In one example, the closure mechanism 160 may extend along at least three edges of the lid 122, the hinge structure 130 being positioned on a remaining edge of the lid 122.

[0026] FIG. 2 is an isometric view of the luggage article 100 with the housing 102 removed for clarity. Referring to FIG. 2, the luggage article 100 includes a frame structure 170 supporting the housing 102 and providing shape to the luggage article 100. For example, the frame structure 170 may be operable to maintain a degree of rigidity of one or more panels of the housing 102 to the extent needed for holding a shape of the housing 102 and supporting a load therein when in use. The frame structure 170, which may be positioned at least partially internal to the housing 102, may include various elements, either interconnected together, positioned separately from one another, or a combination of both. For example, the frame structure 170 may include one or more pan assemblies and/or one or more frame assemblies connected together to define a skeletal framework of the luggage article 100. In one example, the frame structure 170 includes a bottom pan assembly 172, a top panel frame 174, and at least one side panel frame 176 (e.g., two side panel frames 176). As described below, the top and side panel frames 174, 176 may each include a plurality of structural elements coupled together, such as elongate rods, pull-trusions, or pan structures connected together. In one example, the structural elements may be separate discrete elements secured together to form either the top panel frame 174 or the side panel frame 176. Though the bottom pan assembly 172 is shown as a single pan structure, in some embodiments, the bottom pan assembly 172 may be configured similarly to the top panel frame 174. For example, the bottom pan assembly 172 may include a split pan structure, such as a pair of pan members connected together by a plurality of cross members. Accordingly, the description below with respect to the top panel frame 174 may be applied to the bottom pan assembly 172.

[0027] With continued reference to FIG. 2, the side panel frame 176 may be connected to and extend between the bottom pan assembly 172 and the top panel frame 174. In such examples, the bottom pan assembly 172 may support the bottom panel 110, the top panel frame 174 may support the top panel 108, and the side panel frame 176 may support at least one of the remaining panels of the housing 102, such as the left side panel 112 or the right side panel 114. The description above is for illustration purposes only, and the frame elements may support any of the panels, either alone or in combi-

nation. For instance, when connected together, the frame structure 170 may support any and all of the front, rear, top, bottom, left side, and right side panels 104, 106, 108, 110, 112, 114. More specifically, the frame structure 170 may be arranged to provide a desired property (e.g., structure, shape, rigidity, etc.) of the housing 102. For instance, the frame structure 170 may bias the various panels away from one another to outwardly tension the housing 102 and create a tension force in each panel. Similar to the side panel frame 176, the retractable tow handle 150 (e.g., at least one tube of the retractable tow handle 150) may be connected to and extend between the bottom pan assembly 172 and the top panel frame 174.

[0028] Referring to FIG. 1, the housing 102 may cover at least a portion of the frame structure 170. For example, portions of the frame structure 170 (e.g., the bottom pan assembly 172, the top panel frame 174, and/or the side panel frame 176) may be positioned within the housing 102 of the luggage article 100. In this manner, the frame structure 170 may be covered by the material of the housing 102, such as covered by softside material. In one example, at least portions of the frame structure 170 may be secured to the housing 102, such as by one or more hems, pockets, loops, sleeves, etc. secured (e.g., stitched) to the housing 102. For example, at least portions of the frame structure 170 (e.g., at least portions of the bottom pan assembly 172, the top panel frame 174, and/or the side panel frame 176) may be received in the hems, pockets, loops, or sleeves to secure the housing 102 to the frame structure 170. In embodiments having a hybrid case construction, the frame structure 170 may be coupled to the hardside material and/or the softside material. For example, portions of the frame structure 170 (e.g., the bottom pan assembly 172, the top panel frame 174, and/or the side panel frame 176) may be formed integrally with the hardside material defining a portion of at least one panel of the housing 102. In some examples, the frame structure 170 may be coupled to the hardside material via fasteners, corresponding retention features, adhesive, or the like.

[0029] Referring back to FIG. 2, the top panel frame 174, which may be referred to as a split pan, includes a first structural member 190, a second structural member 192, and one or more cross braces or members 194 extending therebetween. In one example, the first structural member 190 may extend along a first edge 196 of the frame structure 170 (see FIG. 1). The second structural member 192 may extend along a second edge 198 of the frame structure 170 (see FIG. 1). The second structural member 192 may, or may not, be identical to or a mirror image of the first structural member 190. In some examples, the first and second structural members 190, 192 may extend along opposing edges of the frame structure 170, such as along front and rear edges, respectively, of the top panel 108 or the top panel frame 174. Depending on the particular application, the first and second structural members 190, 192 may extend parallel or non-

parallel to each other to account for luggage articles of various sizes and shapes.

[0030] As shown, the one or more cross braces 194, which may be referred to as top braces, may be connected to and extend between the first and second structural members 190, 192. In one example, the one or more cross braces 194 may be positioned along the lengths of, such as part way along, the first and second structural members 190, 192. For example, the one or more cross braces 194 may be positioned along the distance between the left side panel 112 and the right side panel 114. In one example, the one or more cross braces 194 may include first and second cross braces 210, 212 each connected to and extending between the first and second structural members 190, 192, such as in one example a spaced apart, parallel relationship.

[0031] In one embodiment, either separately or in combination with the other examples described herein, the first and second cross braces 210, 212 may fix the distance between the front and rear edges of the top panel 108. More specifically, the first and second cross braces 210, 212 may limit movement of the first and second structural members 190, 192 towards or away from each other. Such configurations may provide a more rigid split top frame compared to some traditional luggage case designs. For example, such configurations may limit deformation of the top panel 108 compared to some traditional luggage cases allowing the top panel to collapse or expand. Each structural member 190, 192 has an inner edge 213 and an outer edge 215. The outer edge 215 of the second structural member 192 may define the rear edge of the top panel 108. The outer edge 215 of the first structural member 190 may define the front edge of the top panel 108. The inner edges 213 of the first and second structural members 190, 192 are spaced apart by the first and second cross braces 210, 212 to form a gap 217 between the first and second structural members 190, 192. The first and second cross braces 210, 212 may be secured at or near the inner edges 213 of the first and second structural members 190, 192. For example, the first and second cross braces 210, 212 may be positioned in respective recesses, as explained below. In such examples, the first and second cross braces 210, 212 may be fixedly secured within the recesses so as to not slide with the recesses, such as by fasteners, adhesive, heat or sonic welding, or the like. More than two cross braces may extend between the first and second structural members 190, 192.

[0032] With continued reference to FIG. 2, the one or more cross braces 194 may also include a pair of end rods 214 interconnecting end portions 216 of the first and second structural members 190, 192. The end rods 214 may define the edges of the top panel 108, the left side panel 112, and/or the right side panel 114. As shown, the end rods 214 may be secured between the inner edges 213 of the first and second structural members similarly to the first and second cross braces 210, 212, discussed above. The above examples are non-exhaustive,

and the top panel frame 174 may be characterized as substantially any permutation of structural members and cross braces. For example, the top panel frame 174 may be defined by any number of cross braces 194 (e.g., no cross braces 194, one cross brace 194, two cross braces 194, three cross braces 194, four cross braces 194, etc.), any number of end rods 214 (e.g., zero end rods 214, one end rod 214, two end rods 214, etc.), and any number of structural members (e.g., one structural member, two structural members, etc.). Additionally, each structural member 190, 192 or cross brace 194 may be defined by one or more elements connected together, either integrally or otherwise. Additionally, the structural members 190, 192 and/or cross braces 194 may be rods or plates, as explained more fully below.

[0033] Each of the first structural member 190, the second structural member 192, and the one or more cross braces 194 may be any suitable structural element. For instance, depending on the particular application, the first structural member 190, the second structural member 192, and each of the cross braces 194 may be an elongate rod, a pulltrusion, or a pan structure, among other examples. In one example, the first structural member 190 may define a first or front pan member or structure extending along the front edge of the top panel frame 174. Similarly, the second structural member 192 may define a second or rear pan member or structure extending along the rear edge of the top panel frame 174. In such examples, the cross braces 194 may be connected to and extend between the front and rear pan structures. In these examples, the top panel frame 174 may define a split pan assembly.

[0034] Though the figures illustrate the first and second structural members 190, 192 as pan structures or members, the first and second structural members 190, 192 may be elongate rods, bars, or pulltrusions, among others. In like manner, though the figures illustrate the cross braces 194 as rods, the cross braces 194 may be pan structures. In some examples, the first structural member 190 and/or the second structural member 192 may be configured similarly to the one or more cross braces 194, or vice versa. Additionally, the description above related to a split pan assembly may apply equally to one or more of the side panel frames 176, as explained below. As pan members or structures, the first structural member 190, the second structural member 192, and/or the cross braces 194 may be plate like in shape, such as being relatively thin and/or wide. Additionally, the first structural member 190, the second structural member 192, and/or the cross braces 194 may be shaped to at least partially define a resultant shape of the housing 102. For instance, the first and second structural members 190, 192 may be curved along an edge to define curved or rounded edges of the luggage article 100 along the first and second edges 196, 198. As pan members or structures, the first structural member 190, the second structural member 192, and/or the cross braces 194 may include one or more relief features providing a desired characteristic of the luggage

article 100. For example, the first and second structural members 190, 192 may include one or more cutouts 218 defined therein to reduce the weight and/or increase the torsional rigidity of the structural members 190, 192. As explained below, the first structural member 190, the second structural member 192, and/or the cross braces 194 may be formed from molded plastic to define the various elements as pan members or structures.

[0035] The one or more cross braces 194 may be connected to the first and second structural members 190, 192 in any suitable way. As one example, each of the first and second structural members 190, 192 may include one or more recesses 220 for at least partial receipt of the one or more cross braces 194 therein. The cross braces 194 may be secured within the recesses 220, such as by fasteners, heat or sonic welding, interference fit, adhesive, or the like, or any combination thereof. In some examples, the cross braces 194 may be formed integrally with the first structural member 190 and/or the second structural member 192, such as being injection molded as a single piece.

[0036] With continued reference to FIG. 2, the side panel frame 176 may be configured as desired, such as similar to the top panel frame 174. In one example, each side panel frame 176 includes a pair of elongate rods 230 and one or more side braces 232 connected to and extending therebetween. In one example, the one or more side braces 232 may include first and second side braces 234, 236 each connected to and extending between the pair of elongate rods 230, such as in one example a spaced apart, parallel relationship. As shown, the one or more side braces 232, which may be referred to as cross braces, may be positioned along the lengths of, such as part way along, the elongate rods 230. For example, the one or more side braces 232 may be positioned between the top panel frame 174 and the bottom pan assembly 172. In such examples, the elongate rods 230 may extend between the top panel frame 174 and the bottom pan assembly 172, such as being connected to the top panel frame 174 and the bottom pan assembly 172. Similar to the top panel frame 174, each side panel frame 176 may be characterized as substantially any combination of elongate rods 230 and side braces 232. For example, each side panel frame 176 may be defined by any number of elongate rods 230 (e.g., one elongate rod 230, two elongate rods 230, three elongate rods 230, etc.) and any number of side braces 232 (e.g., one side brace 232, two side braces 232, three side braces 232, etc.). Additionally, each elongate rod 230 or side brace 232 may be defined by one or more elements connected together, either integrally or otherwise. As explained below, each elongate rod 230 or side brace 232 may be a rod or plate.

[0037] The description above notwithstanding, each of the elongate rods 230 and the one or more side braces 232 may be any suitable structural element. For example, each elongate rod 230 and each side brace 232 may be an elongated rod, bar, pulltrusion, or pan structure. More

specifically, the elongate rods 230 may define a pair of pan members extending along opposing edges (e.g., front and rear edges) of the side panel frame 176, the one or more side braces 232 connected to and extending between the opposing pan members. In this manner, the top and side panel frames 174, 176 may be similar or substantially identical to each other. As such, the luggage article 100 may include a frame having a pair of structural members and one or more braces connected to and extending between the structural members, the frame defined on either the top panel 108 or a side panel of the luggage article 100. As pan members or structures, the elongate rods 230 and/or the side braces 232 may be plate like in shape, such as being relatively thin and/or wide. Like the first structural member 190, the second structural member 192, and/or the cross braces 194, the elongate rods 230 and/or the side brace 232 may be formed from molded plastic.

[0038] The one or more side braces 232 may be connected to the elongate rods 230 in any suitable manner. For example, as shown in FIG. 2, the side panel frame 176 may include connectors 250 interconnecting the side braces 232 and the elongate rods 230. Each connector 250 may include a main body 252 and one or more recesses 254 defined therein for connection to the elongate rods 230 and the side braces 232. For instance, the elongate rods 230 and the side braces 232 may include end regions 256 designed to slide into or otherwise positioned within the recesses 254 defined in the connectors 250, as explained below. As shown, the connectors 250 may be shaped to position the elongate rods 230 and the side braces 232 at a desired angle to one another. For instance, the connectors 250 may be shaped to position the side braces 232 substantially orthogonal to the elongate rods 230, though other relative positioning is contemplated depending on the specific requirements of the luggage article 100. In one example, the elongate rods 230 may extend vertically parallel to each other, though the elongate rods 230 may extend non-parallel to each other in other examples. In such examples, the side braces 232 may extend laterally between the elongate rods 230, such as perpendicular to the elongate rods 230.

[0039] In one example, engagement of the elongate rods 230 and the side braces 232 within the recesses 254 of the connectors 250 may reduce or eliminate the need for mechanical fasteners (e.g., rivets, screws, etc.) for assembly. For instance, the end regions 256 and/or the recesses 254 may be configured such that the end regions 256 are interference fit within the recesses 254. More specifically, the end regions 256 may be sized annularly larger than the recesses 254 to frictionally engage the elongate elements within the recesses 254. In one example, each recess may define a gap in a sidewall of the main body 252 to allow resilient expansion of the recess upon insertion of the elongate rods 230 or the side braces 232 therein. Additionally or alternatively, the elongate rods 230 and/or the side braces 232 may be formed from material or constructed in a manner permit-

ting resilient deformation thereof to accommodate insertion of the end regions 256 within the recesses 254. The end regions 256 of the elongate rods 230 and/or the side braces 232 may be secured to the connectors 250 in other manners, such as through fasteners, heat or sonic welding, adhesive, or the like, or any combination thereof. In one example, the connectors 250 may be formed integrally with either the elongate rods 230 or the side braces 232. The elongate rods 230 may be connected to the top panel frame 174 and/or to the bottom pan assembly 172 in a similar manner. For instance, the elongate rods 230 may be received within corresponding recesses defined in the bottom pan assembly 172 and/or the top panel frame 174 (e.g., within the first and second structural members 190, 192), and secured therein in any suitable fashion. Additionally, the elongate rods 230 may be received in sleeves attached to the seams between the side panel 112 or 114 and, respectively, the front and rear panels 104, 106 to attach the side panel frame 176 to the housing 102.

[0040] The top panel frame 174 and/or the side panel frame 176 may be sized and/or shaped to provide a desired property (e.g., structure, shape, tension, rigidity, etc.) to the luggage article 100. For example, as noted above, the top panel frame 174 may be coupled to the top panel 108 to suitably tension the top panel 108 for use. In like manner, the side panel frame 176 may be coupled to the left side panel 112 or to the right side panel 114 to suitably tension the left side panel 112 or the right side panel 114 for use. In some examples, the side panel frame 176 may be planar such that the elongate rods 230 and the side braces 232 are positioned within a common plane. As shown, the side panel frame 176 may form a substantially rectangular shape, though other suitable shapes are contemplated, such as trapezoidal or circular, among others. Each of the first structural member 190, the second structural member 192, the cross braces 194, the elongate rods 230, and/or the side braces 232 may extend in a straight or a substantially straight line, may be curved along their lengths, or may include a combination of straight and curved segments. Additionally, each of the cross braces 194, the elongate rods 230, and/or the side braces 232 may include a diameter ranging between about 3mm to about 10mm (preferably between about 3.5mm to about 6.5mm), though other dimensions are contemplated depending on the size, weight, and/or strength requirements of the frame structure 170. In one example, the elongate rods 230 may include a diameter greater than the diameters of the cross braces 194 and the side braces 232, such as between about 1.5 times greater to about twice the diameter. Depending on the particular application, the elongate rods 230, the cross braces 194, and/or the side braces 232 may be hollow or substantially solid in cross section.

[0041] The side braces 232 may have a circular or non-circular cross-section keyed to the profile shape of the recesses 254 of the connectors 250. Similarly, the cross braces 194 may have a circular or non-circular cross-

section keyed to the profile shape of the recesses 220 of the first and second structural members 190, 192. The elongate rods 230 may also have a circular or non-circular cross-section keyed to the profile shape of the recesses of the bottom pan assembly 172 and the top panel frame 174. A non-circular cross-section may limit twisting in the frame structure 170 by limiting relative rotation of the various elements. For example, a non-circular profile shape of the cross braces 194, the elongate rods 230, and the side braces 232 may limit rotation of the elements about their longitudinal axes, thereby limiting twisting or flexion of the frame structure 170 and the housing 102 coupled thereto. Some examples of non-circular shapes include teardrop, elliptical, or polygonal, among others. In such examples, the various recesses may include a corresponding shape to matingly receive the cross braces 194, the elongate rods 230, and/or the side braces 232 and limit rotation of the elements within the recesses. **[0042]** FIG. 4 is an enlarged, fragmentary isometric view of the luggage article 100 and showing the side carry handle 154 attached to the side panel frame 176 of the frame structure 170. FIG. 5 is an elevation view of a side panel of the luggage article 100 (e.g., the right side panel 114) with underlying portions of the frame structure 170 as well as the connection details of the side carry handle 154 to the frame structure 170 shown in dash for illustration purposes. FIG. 6 is a fragmentary cross-sectional view taken along line 6-6 of FIG. 5. Referring to FIGS. 4-6, the side carry handle 154, which may be a fabric handle or a rigid handle, may be coupled to the frame structure 170. For example, the side carry handle 154 may be coupled to the side panel frame 176. More specifically, the side carry handle 154 may be coupled to at least the one or more side braces 232 of the side panel frame 176. Depending on the particular application, the side carry handle 154 may also be coupled to the bottom pan assembly 172 and/or to the top panel frame 174, as explained below. In one example, the side carry handle 154 includes opposing end portions, such as a first end portion 270 and a second end portion 272. The first and second end portions 270, 272 include the terminal ends and/or the regions adjacent to the terminal ends of the side carry handle 154. The first end portion 270 of the side carry handle 154 may be coupled to the first side brace 234. The second end portion 272 of the side carry handle 154 may be coupled to the second side brace 236.

[0043] With continued reference to FIGS. 4-6, the luggage article 100 may include a first handle reinforcing strap 274 and a second handle reinforcing strap 276. As described more fully below, the first and second handle reinforcing straps 274, 276 may attach the side carry handle 154 to the side panel frame 176. For instance, the first and second handle reinforcing straps 274, 276 may loop around the side braces 232 to couple the side carry handle 154 to the side braces 232. As described herein, the first and second handle reinforcing straps 274, 276 may each be formed from one or more strips of fabric. For instance, FIG. 6 illustrates the first handle reinforcing

strap 274 formed from a plurality of fabric strips stitched together. FIG. 6 also illustrates the second handle reinforcing strap 276 formed as a single strap. The embodiment illustrated in FIG. 6, however, is non-limiting, and the first and second handle reinforcing straps 274, 276 may be formed in any suitable manner. For example, rather than being formed from a plurality of fabric strips secured together, such as in one example being stitched together, as shown in FIGS. 4-6, the first handle reinforcing strap 274 may be formed as a strap made of at least in part a single continuous length of material. The single length of material may be one or more layers, at least one of which extends continuously from a side brace 232 to an end rod 214. Similarly, rather than formed as a single strap as shown in FIGS. 4-6, the second handle reinforcing strap 276 may be formed from a plurality of fabric strips stitched or otherwise secured together. In this manner, both the first and second handle reinforcing straps 274, 276 may be continuous, both the first and second handle reinforcing straps 274, 276 may be made of more than one piece of material secured together, or a combination thereof. In addition, though described as fabric straps, the first and second handle reinforcing straps 274, 276 may be formed as any suitable structure or material, such as reinforcing strips of plastic, metal, or the like. As shown in FIG. 6, the first and second handle reinforcing straps 274, 276 may be curved along their lengths. In this manner, the first and second handle reinforcing straps 274, 276 may have a degree of slack to allow movement of the side carry handle 154 during use, as explained below.

[0044] Referring to FIGS. 4-6, the first end portion 270 of the side carry handle 154 may be attached (such as in one example by being stitched) to the first handle reinforcing strap 274. Similarly, the second end portion 272 of the side carry handle 154 may be attached (such as in one example by being stitched) to the second handle reinforcing strap 276. The first handle reinforcing strap 274 may extend between the one or more side braces 232 and the top panel frame 174, such as between the first side brace 234 and an end rod 214 of the top panel frame 174. The second handle reinforcing strap 276 may extend between the one or more side braces 232 and the bottom pan assembly 172, such as between the second side brace 236 and the bottom pan assembly 172. In some examples, the first handle reinforcing strap 274 may be attached (e.g., stitched) to the top panel frame 174, such as to the first structural member 190, to the second structural member 192, and/or to the end rod 214. In like manner, the second handle reinforcing strap 276 may be attached (such as in one example by being stitched) to the bottom pan assembly 172.

[0045] As shown in FIG. 6, portions of the side panel frame 176 and/or the top panel frame 174 may be received within sleeves 290, 292, 294 defined by the first and second handle reinforcing straps 274, 276. For example, the one or more side braces 232 of the side panel frame 176 as well as the end rod 214 of the top panel

frame 174 may be received within respective sleeves. More specifically, the first handle reinforcing strap 274 may define a first sleeve 290 in which the first side brace 234 is received. Similarly, the second handle reinforcing strap 276 may define a second sleeve 292 in which the second side brace 236 is received. In one example, the first handle reinforcing strap 274 may also define a third sleeve 294 in which an end rod 214 of the top panel frame 174 is received. For example, opposing end portions 296, 298 of the first handle reinforcing strap 274 may be folded and stitched to themselves to define the first and third sleeves 290, 294, respectively. Similarly, an end portion 300 of the second handle reinforcing strap 276 may be folded and stitched to itself to define the second sleeve 292. As shown, the sleeves 290, 292, 294 may form an eyelet defining an interior space. In such examples, the side braces 232 and/or the end rods 214 may be positioned within the space and constrained by the sleeves 290, 292, 294. The sleeves 290, 292, 294 may be defined in other suitable manners. For example, in one example, the first and third sleeves 290, 294 may be separate elements to which the first handle reinforcing strap 274 is attached. In like manner, the second sleeve 292 may be a separate element to which the second handle reinforcing strap 276 is attached.

[0046] Referring to FIGS. 5 and 6, at least portions of the first and second handle reinforcing straps 274, 276 may be positioned between adjacent fabric panels 302, 304, 306 defining the side panel of the housing 102. Additionally or alternatively, the first and second end portions 270, 272 of the side carry handle 154 may be positioned at least partially between the adjacent fabric panels 302, 304, 306 defining the side panel of the housing 102. For example, the right side panel 114 may be formed from a plurality of fabric panels 302, 304, 306 overlying one another. More specifically, the right side panel 114 may be formed from first and second panels 302, 304 at least partially overlying a third panel 306. As shown in FIG. 6, the third panel 306 may extend from the bottom pan assembly 172 to the top panel frame 174. In such examples, the first and second panels 302, 304 may overlie upper and lower portions, respectively, of the third panel 306. For example, the first panel 302 may overlie the third panel 306 from adjacent the top panel frame 174 to adjacent the side carry handle 154 (e.g., to adjacent the first end portion 270 of the side carry handle 154). Similarly, the second panel 304 may overlie the third panel 306 from adjacent the bottom pan assembly 172 to adjacent the side carry handle 154 (e.g., to adjacent the second end portion 272 of the side carry handle 154).

[0047] As shown in FIG. 6, the first handle reinforcing strap 274 and the first end portion 270 of the side carry handle 154 may be positioned, such as slidably positioned, between the first and third panels 302, 306. Similarly, the second handle reinforcing strap 276 and the second end portion 272 of the side carry handle 154 may be positioned, such as slidably positioned, between the

second and third panels 304, 306. In such examples, the first handle reinforcing strap 274 and the first end portion 270 of the side carry handle 154 may slide relative to, and within a space 308 between, the first and third panels 302, 306. In like manner, the second handle reinforcing strap 276 and the second end portion 272 of the side carry handle 154 may slide relative to, and within a space 309 between, the second and third panels 304, 306. The first, second, and third panels 302, 304, 306 may be configured in other suitable manners. For example, rather than extending between the bottom pan assembly 172 and the top panel frame 174, the third panel 306 may extend just under or a small distance beyond the extent of the side carry handle 154. In such examples, the third panel 306 may be attached (such as in one example by being stitched) to the first and second handle reinforcing straps 274, 276.

[0048] In addition to providing structure to which the side carry handle 154 is attached, the first and second handle reinforcing straps 274, 276 may limit failure of the side carry handle 154 when lifting the luggage article 100 from the side carry handle 154, may limit movement of the side carry handle 154 away from the luggage article 100, and/or may limit deformation of the luggage article 100 when carrying the luggage article 100 from the side carry handle 154, among others. For example, as reinforcement to the side carry handle 154, the first and second handle reinforcing straps 274, 276 may limit deformation of the luggage article 100 when lifting the luggage article 100 from the side carry handle 154, such as by distributing forces applied to the side carry handle 154 equally over both sides of the side carry handle 154. In one example, attachment of the first and second handle reinforcing straps 274, 276 to the bottom pan assembly 172, to the top panel frame 174, to the side panel frame 176, and/or to the first and second side braces 234, 236 may limit the side panel from collapsing when a user lifts the luggage article 100 from the side carry handle 154. For instance, rather than transferring a lifting force to the side panel of the housing 102, the lifting force may be transferred to the frame structure 170 directly, whereupon the lifting force can be distributed amongst the various frame elements to limit deformation of the luggage article 100.

[0049] Referring to FIG. 6, the side carry handle 154 may be moved away from the side panel 112 or 114 of the luggage article 100 when pulled by a user, and may retract back towards the side panel 112 or 114 when released. For example, the side carry handle 154 may move away from the right side panel 114 by the slack being taken out of the first handle reinforcing strap 274 and/or the second handle reinforcing strap 276. In this way, the side carry handle 154 may be moved away from the housing 102 to provide space under the side carry handle 154 for a user's hand. In such examples, the side carry handle 154 may be retracted against or at least towards the right side panel 114 when the side carry handle 154 is released by the user. For example, the side

carry handle 154 may include a degree of rigidity biasing the first and second end portions 270, 272 away from each other to automatically retract the side carry handle 154 towards the right side panel 114 when released by the user. In some examples, the side carry handle 154 may be unbiased. As such, the side carry handle 154 may be moved towards the right side panel 114 through selective manipulation by the user.

[0050] Additionally or alternatively, the side carry handle 154 may move relative to the first and second side braces 234, 236 when a user lifts the luggage article 100 by the side carry handle 154. For instance, at least a portion of the side carry handle 154 may move away from the first and second side braces 234, 236 by the slack being taken out of the sleeves 290, 292. More specifically, under a lifting force applied to the side carry handle 154, the first and second handle reinforcing straps 274, 276 may move until the side braces 232 engage an end of the sleeves 290, 292. In these and other examples, the side carry handle 154 may be secured to the seam between the side carry handle 154 and the housing 102. Additionally or alternatively, the first and second handle reinforcing straps 274, 276 may not be provided with slack. For example, the first and second handle reinforcing straps 274, 276 may be generally taut once assembled to the side panel frame 176. Such configurations may limit the amount of force applied directly to the first and second side braces 234, 236. For example, such configurations may better transfer a lifting force to the fixation points of the first and second handle reinforcing straps 274, 276 to the top panel frame 174 and the bottom pan assembly 172, respectively. In such examples, the sleeve 294 may extend closely adjacent to the end rod 214 therein so as to limit the amount of slack within the sleeve 294. The tautness of the first and second handle reinforcing straps 274, 276 may also bias the side carry handle 154 towards the side panel. For instance, the tautness of the first and second handle reinforcing straps 274, 276 may provide opposing forces biasing the first and second end portions 270, 272 of the side carry handle 154 away from each other when not under a lifting force.

[0051] FIG. 3 is an enlarged, fragmentary isometric view of the luggage article 100 and showing the top carry handle 152 attached to the top panel frame 174 of the frame structure 170. FIG. 7 is a plan view of the top panel 108 of the luggage article 100 with underlying portions of the frame structure 170 as well as the connection details of the top carry handle 152 to the frame structure 170 shown in dash for illustration purposes. FIG. 8 is a fragmentary cross-sectional view taken along line 8-8 of FIG. 7. Referring to FIGS. 3, 7, and 8, the top carry handle 152 may be connected to the top panel frame 174 of the luggage article 100 in a manner similar to the coupling of the side carry handle 154 to the side panel frame 176. For example, the top carry handle 152 may be coupled to at least the one or more top braces 194 of the top panel frame 174.

[0052] With continued reference to FIGS. 3, 7, and 8,

the top carry handle 152, which may be a fabric handle or a rigid handle, may include opposing end portions, such as opposing first and second end portions 310, 312, respectively coupled to the first and second cross braces 210, 212 of the top panel frame 174. The first and second end portions 310, 312 include the terminal ends and/or the regions adjacent to the terminal ends of the top carry handle 152. The top carry handle 152 may be coupled to the first and second cross braces 210, 212 in a similar manner as described above. For instance, the luggage article 100 may include a pair of reinforcing straps, such as first and second reinforcing straps 314, 316, attaching the first and second end portions 310, 312 of the top carry handle 152 attaching the first and second cross braces 210, 212, respectively. The first and second reinforcing straps 314, 316 may extend from the first and second cross braces 210, 212 to the side panel frames 176 on opposing sides of the luggage article 100, such as to the end rods 214 on opposing sides of the luggage article 100. In particular, the first reinforcing strap 314 may extend from the first cross brace 210 to an end rod 214 on one side of the luggage article 100 (e.g., adjacent to the left side panel 112). The second reinforcing strap 316 may extend from the second cross brace 212 to an end rod 214 on an opposite side of the luggage article 100 (e.g., adjacent to the right side panel 114).

[0053] The first and second reinforcing straps 314, 316 may be configured similarly to the first and second handle reinforcing straps 274, 276 discussed above. For instance, each of the first and second reinforcing straps 314, 316 may be formed from one or more strips of fabric connected together. For example, FIGS. 3, 7, and 8 illustrate the first and second reinforcing straps 314, 316 each formed as a single strap. The examples illustrated in FIGS. 3, 7, and 8, however, are non-limiting, and the first and second reinforcing straps 314, 316 may be formed in many suitable manners. For example, rather than formed as a single strap, the first reinforcing strap 314, the second reinforcing strap 316, or both the first and second reinforcing straps 314, 316 may be formed from a plurality of fabric strips stitched or otherwise secured together. In this manner, both the first and second reinforcing straps 314, 316 may be continuous, both the first and second reinforcing straps 314, 316 may be made of more than one piece of material secured together, or a combination thereof.

[0054] As shown in FIG. 8, the first and second reinforcing straps 314, 316 may be curved along their lengths. For example, the first reinforcing strap 314 may include a length greater than the distance between the first cross brace 210 and the end rod 214 adjacent to the left side panel 112 such that the first reinforcing strap 314 has a degree of slack therealong. Similarly, the second reinforcing strap 316 may include a length greater than the distance between the second cross brace 212 and the end rod 214 adjacent to the right side panel 114 such that the second reinforcing strap 316 has a degree of slack therealong. In such examples, the top carry handle

152 may move away from the top panel 108 as the slack is taken out of the first reinforcing strap 314 and/or the second reinforcing strap 316, such as to provide space under the top carry handle 152 for a user's hand. In some examples, the top carry handle 152 may be retracted back against or at least towards the top panel 108 when the top carry handle 152 is let go. For example, the top carry handle 152 may include a degree of rigidity biasing the first and second end portions 310, 312 away from each other to automatically retract the top carry handle 152 towards the top panel 108 when released by the user. Like the side carry handle 154, the top carry handle 152 may be unbiased such that movement of the top carry handle 152 towards the top panel 108 is accomplished only through selective manipulation by a user.

[0055] Additionally or alternatively, the top carry handle 152 may move relative to the first and second cross braces 210, 212 when a user lifts the luggage article 100 by the top carry handle 152. For example, at least a portion of the top carry handle 152 may move away from the first and second cross braces 210, 212 by the slack being taken out of the sleeves 322. More specifically, under a lifting force applied to the top carry handle 152, the first and second reinforcing straps 314, 316 may move until the first and second cross braces 210, 212 engage an end of the sleeves 322. In such examples, the top carry handle 152 may be fixed in the seam between the top carry handle 152 and the top panel 108. Additionally or alternatively, the first and second reinforcing straps 314, 316 may not be provided with slack. For example, the first and second reinforcing straps 314, 316 may be generally taut once assembled to the top panel frame 174. Such configurations may limit the amount of force applied directly to the first and second cross braces 210, 212. For example, such configurations may better transfer a lifting force to the fixation points of the first and second reinforcing straps 314, 316 to the end rods 214. In such examples, the sleeves 320 may extend closely adjacent to the end rods 214 therein so as to limit the amount of slack within the sleeve 320. The tautness of the first and second reinforcing straps 314, 316 may also bias the top carry handle 152 towards the top panel 108. For instance, the tautness of the first and second reinforcing straps 314, 316 may provide opposing forces biasing the first and second end portions 310, 312 of the top carry handle 152 away from each other.

[0056] Similar to the description above, portions of the top panel frame 174 may be received within sleeves defined by the reinforcing straps 314, 316. For example, the end rods 214 and the first and second cross braces 210, 212 may be received within respective sleeves 320, 322 defined in the reinforcing straps 314, 316. More specifically, sleeve 320 may be defined in each of the first and second reinforcing straps 314, 316 to receive an end rod 214. Additionally or alternatively, sleeve 322 may be defined in each of the first and second reinforcing straps 314, 316 to receive either the first cross brace 210 or the second cross brace 212. Similar to the sleeves 290, 292,

294 described above, the sleeves 320, 322 may be formed by the reinforcing straps 314, 316 themselves or may be separate elements to which the reinforcing straps 314, 316 are attached. For example, opposing end portions 324, 326 of each reinforcing strap 314 or 316 may be folded and stitched to themselves to define the sleeves 320 and 322 on opposing ends of each reinforcing strap 314 or 316.

[0057] In other examples, the top carry handle 152 may be attached to the luggage article 100 in a different manner, such as directly to the housing 102, to the first structural member 190, to the second structural member 192, or otherwise. As shown in FIG. 7, once connected to the luggage article 100, the top carry handle 152 may be positioned between the first and second structural members 190, 192. The top carry handle 152 may be positioned equidistantly from the first and second structural members 190, 192, or the top carry handle 152 may be positioned closer to one of the first and second structural members 190, 192 depending on the particular application. Unlike some traditional luggage construction wherein a carry handle is connected to a full top pan or where there is a substantial plate-like frame structure positioned underneath the carry handle, the connection of the top carry handle 152 to the braces extending between spaced apart pan structures may provide a softer touch for a user grasping the top carry handle 152 because of the absence of the plate-like frame structure beneath the carry handle. For instance, rather than having a stiff structure beneath the top carry handle 152, the present disclosure provides more forgiving fabric layers under the top carry handle 152. Accordingly, unlike some traditional luggage construction, a user may grab the top carry handle 152 without pushing the user's fingers against a stiff surface under the fabric.

[0058] Referring to FIGS. 7 and 8, the top panel 108 of the housing 102 may be defined by a plurality of fabric panels overlying one another, such as first and second panels 330, 332 at least partially overlying a third panel 334. As shown in FIG. 8, the third panel 334 may extend from adjacent the left side panel 112 to adjacent the right side panel 114, though other suitable constructions are contemplated. In such examples, the first and second panels 330, 332 may overlie left and right portions, respectively, of the third panel 334. For example, the first panel 330 may overlie the third panel 334 from adjacent the left side panel 112 to adjacent the top carry handle 152. Similarly, the second panel 332 may overlie the third panel 334 from adjacent the right side panel 114 to adjacent the top carry handle 152.

[0059] In one example, at least portions of the first and second reinforcing straps 314, 316 may be positioned between the fabric panels 330, 332, 334. Additionally or alternatively, the first and second end portions 310, 312 of the top carry handle 152 may be positioned at least partially between the fabric panels 330, 332, 334. As shown in FIG. 8, the first reinforcing strap 314 and at least a portion of the first end portion 310 of the top carry

handle 152 may be positioned, such as slidably positioned within a space 340 defined between the first and third panels 330, 334. Similarly, the second reinforcing strap 316 and at least a portion of the second end portion 312 of the top carry handle 152 may be positioned, such as slidably positioned, within a space 342 defined between the second and third panels 332, 334. In such examples, the first reinforcing strap 314 and the first end portion 310 of the top carry handle 152 may slide relative to, and within the space 340 between, the first and third panels 330, 334. In like manner, the second reinforcing strap 316 and the second end portion 312 of the top carry handle 152 may slide relative to, and within the space 342 between, the second and third panels 332, 334.

[0060] The luggage article 100 may be formed from a variety of materials and means. For example, the bottom pan assembly 172, the first structural member 190, and the second structural member 192, among others, 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 examples, the elongate rods 230, the side braces 232, and/or the cross braces 194, among others, may be extruded from aluminum or other similar metal. In addition, the elongate rods 230, the side braces 232, and/or the cross braces 194 may be formed from fiber reinforced epoxy, resin, or other similar material. The frame structure 170 may be formed or molded in any suitable manner, such as by plug molding, blow molding, injection molding, extrusion, casting, or the like. As noted above, the luggage article 100 may be formed from softside material and/or hardside material. The softside material may be nylon, canvas, polyester, leather, PVC, polypropylene, polyethylene, and/or PTFE, among others. The hardside material may be a thermoplastic material (self-reinforced or fiber reinforced), ABS, polycarbonate, polypropylene, polystyrene, PVC, polyamide, and/or PTFE, among others.

[0061] 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 examples 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.

[0062] Those skilled in the art will appreciate that the presently disclosed examples 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 softside luggage article (100) comprising:

a first panel (108, 114);
a frame (176) supporting the first panel (108, 114), the frame (176) including:

a first structural member (230) extending along a first edge (196) of the first panel (108, 114);
a second structural member (230) extending along a second edge (198) of the first panel (108, 114); and
two or more cross braces (232) connected to and extending between the first and second structural members (230); and

a carry handle (154) including opposing first and second end portions (270, 272), each end portion (270, 272) of the carry handle (154) coupled to one of the two or more cross braces (232).

2. The luggage article (100) of claim 1, further comprising a reinforcing strap (274, 276) coupled to an end portion (270, 272) of the carry handle (154), the reinforcing strap (274, 276) extending to and coupling with an edge of the first panel (108, 114).

3. The luggage article (100) of claim 2, wherein:

the first panel (108, 114) is defined by two or more fabric panels (304, 306) at least partially overlying one another; and
the reinforcing strap (274, 276) is positioned at least partially between the two or more fabric panels (304, 306).

4. The luggage article (100) of claim 2 or 3, wherein the reinforcing strap (274, 276) is formed as a single strap.

5. The luggage article (100) of any preceding claim, wherein the first panel (108, 114) is a top panel (108) or a side panel (112, 114) of the luggage article (100).

6. The luggage article (100) of any of claims 2-5, further comprising a second panel (108, 110) and a split pan (174) supporting the second panel (108, 110), the split pan (174) including at least two cross members

(194) extending between opposing first and second pan members (190, 192).

7. The luggage article (100) of claim 6, wherein the second panel (108, 110) is a top panel (108).

8. The luggage article (100) of claim 6 or 7, further comprising a second carry handle (152) including opposing first and second end portions (310, 312), each end portion (310, 312) of the second carry handle (152) coupled to one of the at least two cross members (194).

9. The luggage article (100) of any preceding claim, the frame (174, 176) further comprising a pair of end rods (214) interconnecting end portions (216) of the first and second structural members (190, 192, 230).

10. The luggage article (100) of claim 8, further comprising a pair of reinforcing straps (314, 316), each reinforcing strap (314, 316) coupled to an end portion (310, 312) of the carry handle (152) and extending to and coupled with one of the pair of end rods (214).

11. The luggage article (100) of any preceding claim, wherein each of the first and second structural members (230) is an elongate rod, a pulltrusion, or a pan member.

12. The luggage article (100) of any preceding claim, wherein the first and second structural members (230) extend vertically between a top panel frame (174) and a bottom pan assembly (172).

13. The luggage article (100) of claim 12, further comprising a plurality of wheel assemblies (140) attached to the bottom pan assembly (172).

14. A softside luggage article (100) comprising:

a top panel (108); and
a frame (174) supporting the top panel (108), the frame (174) including:

a first pan member (190) extending along a front edge (196) of the top panel (108);
a second pan member (192) extending along a rear edge (198) of the top panel (108); and
two or more cross braces (194) extending between the first and second pan members (190, 192), the two or more cross braces (194) limiting movement of the first and second pan members (190, 192) relative to each other to fix the distance between the front and rear edges (196, 198) of the top panel (108).

15. The luggage article (100) of claim 14, further comprising a top carry handle (152) including opposing first and second end portions (310, 312), each end portion (310, 312) of the top carry handle (152) coupled to one of the two or more cross braces (194). 5

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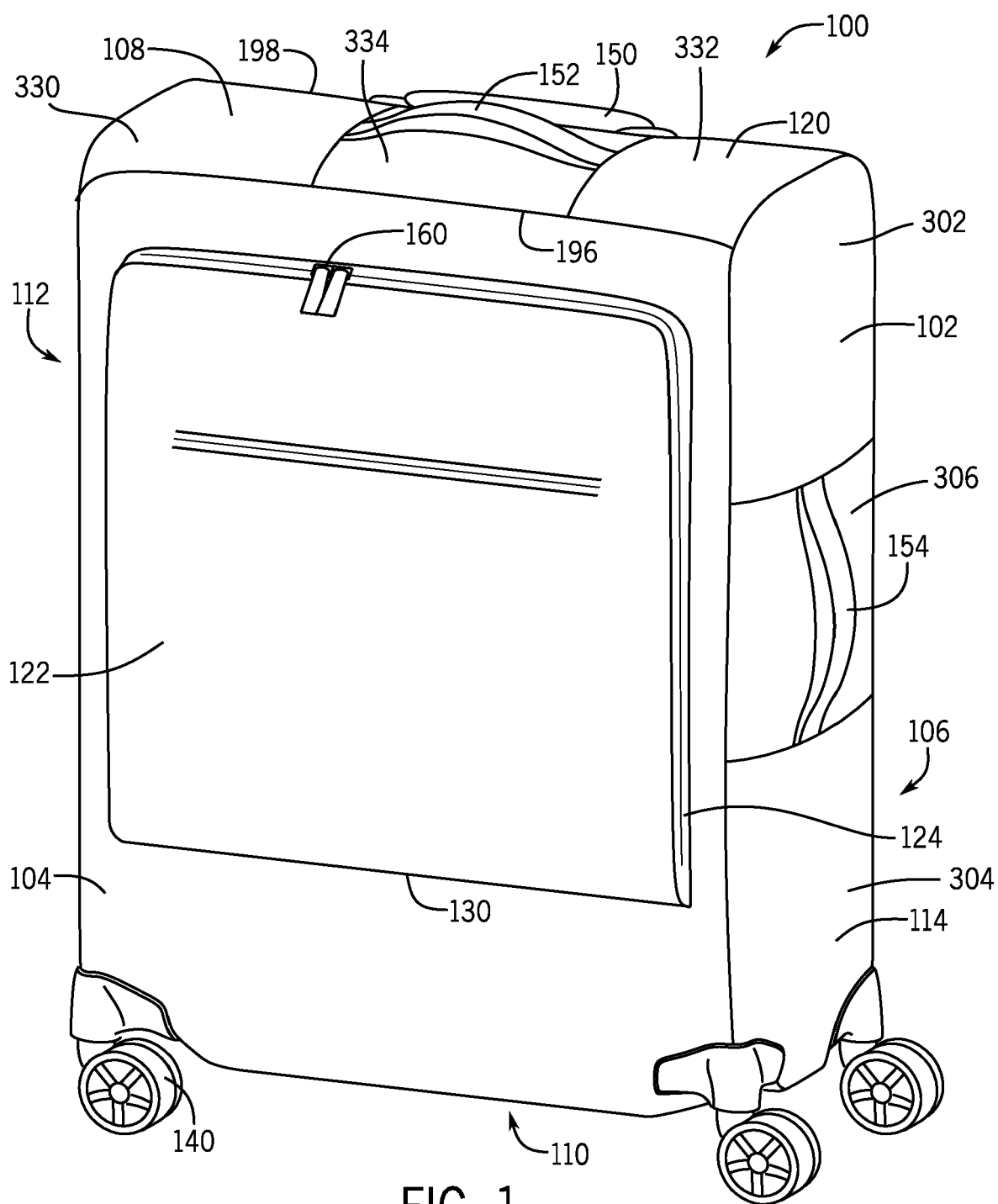


FIG. 1

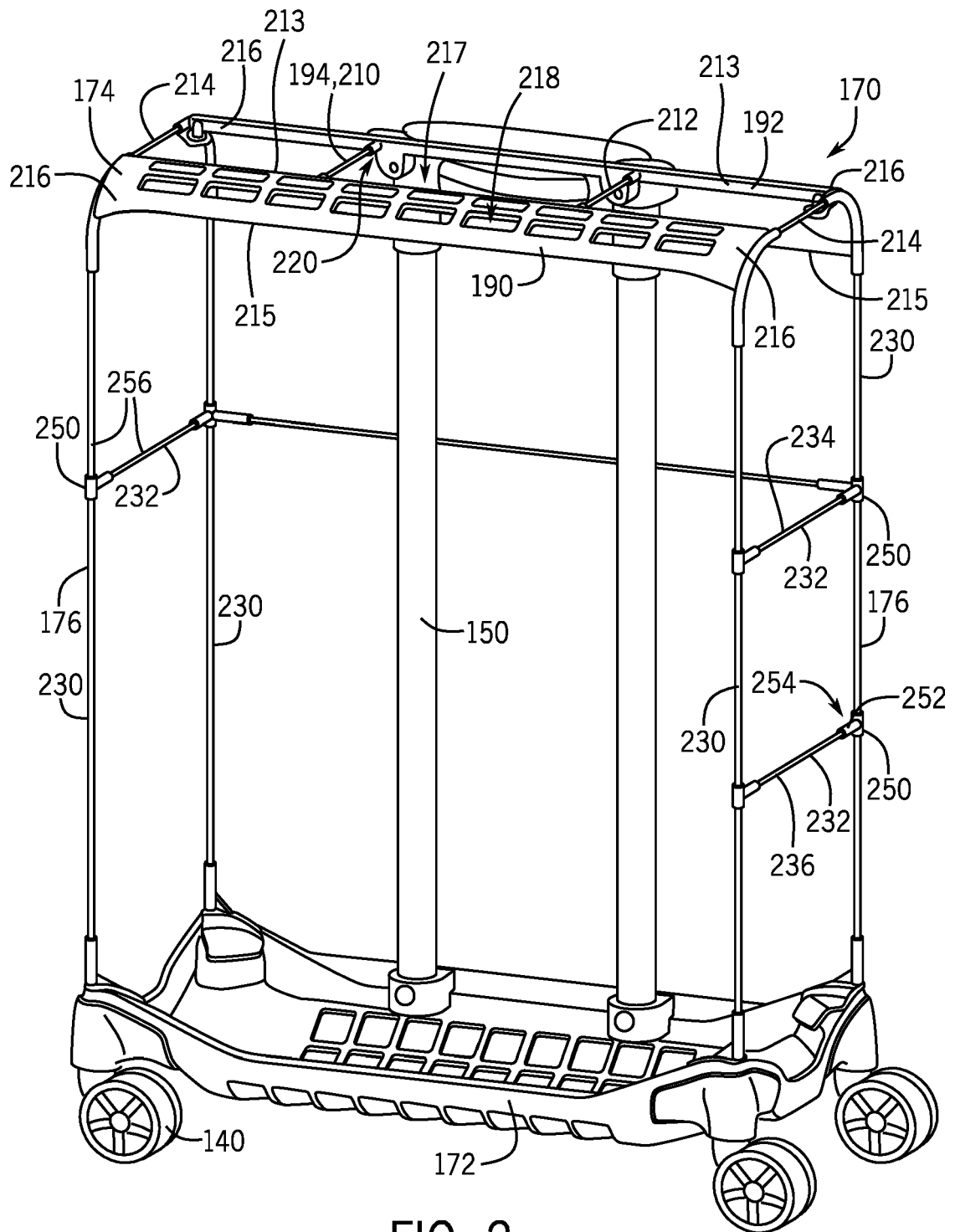


FIG. 2

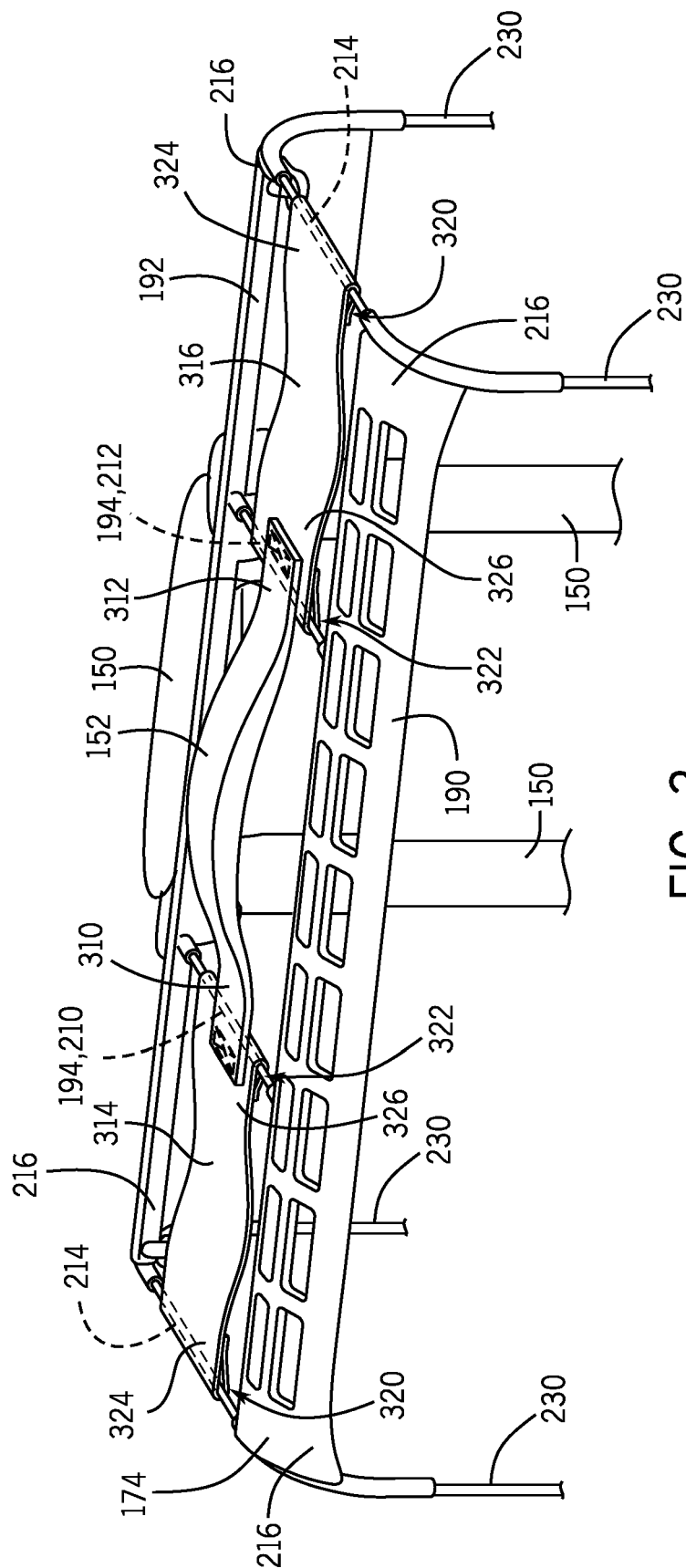
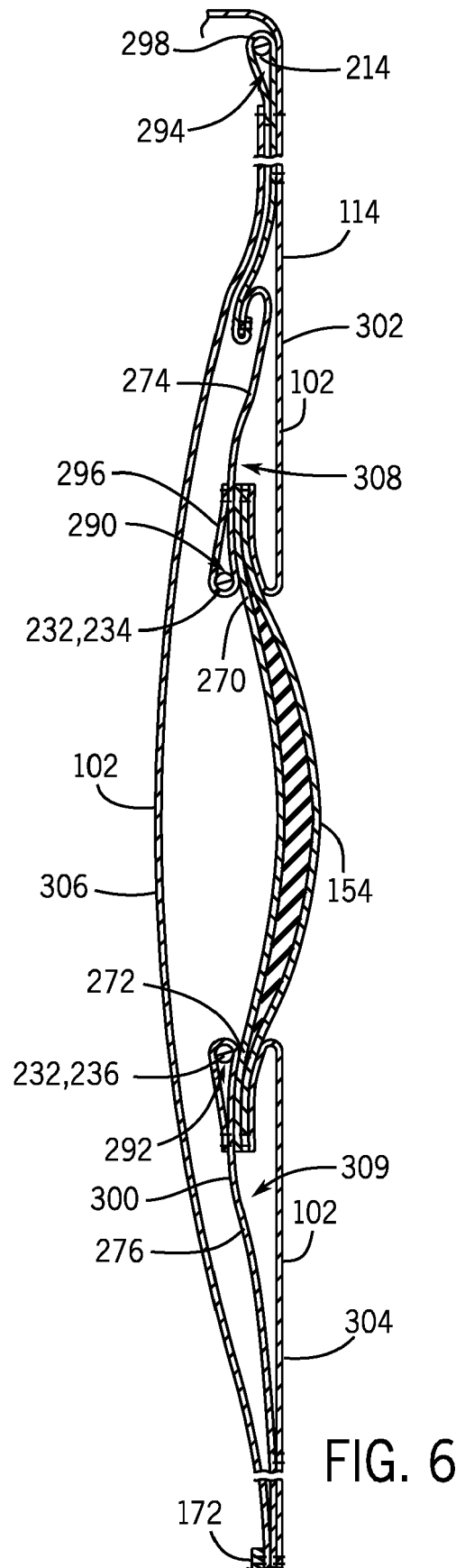
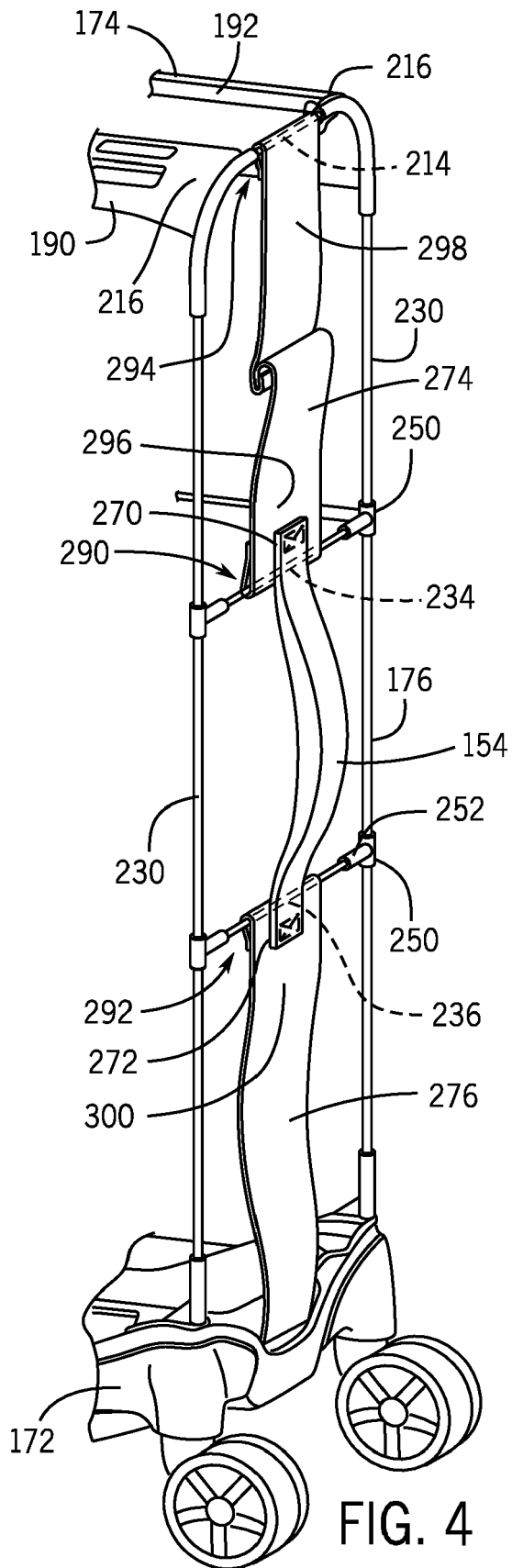
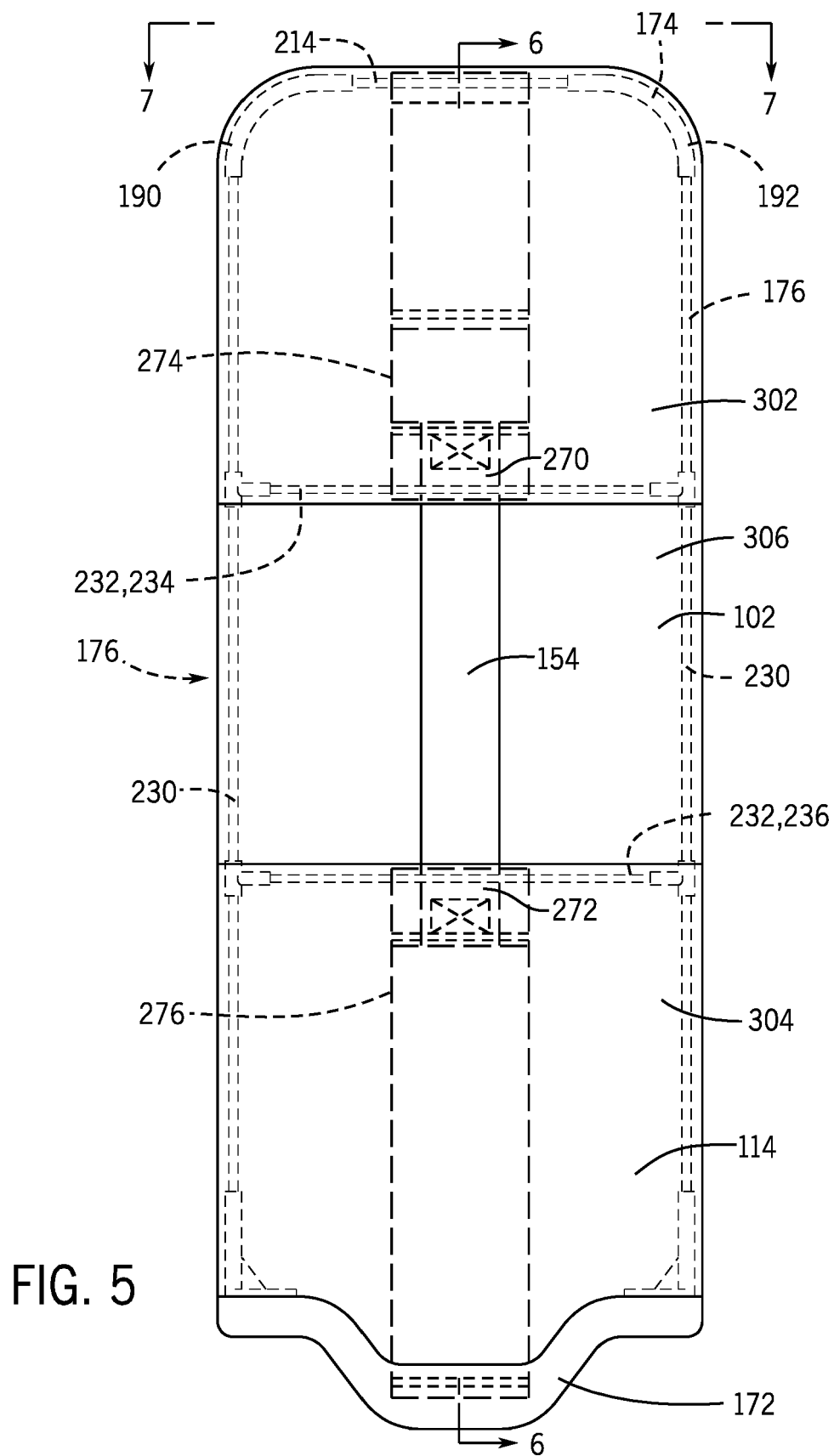
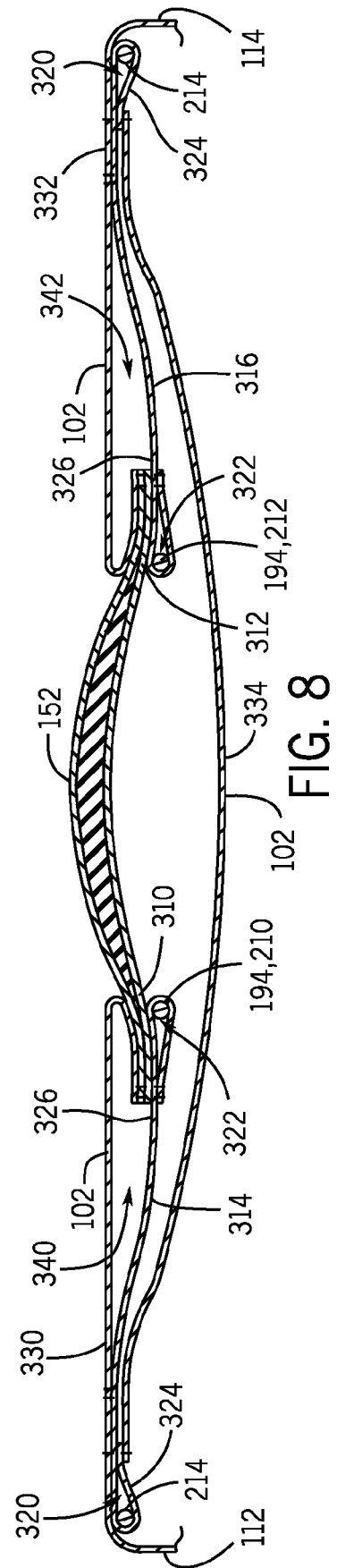
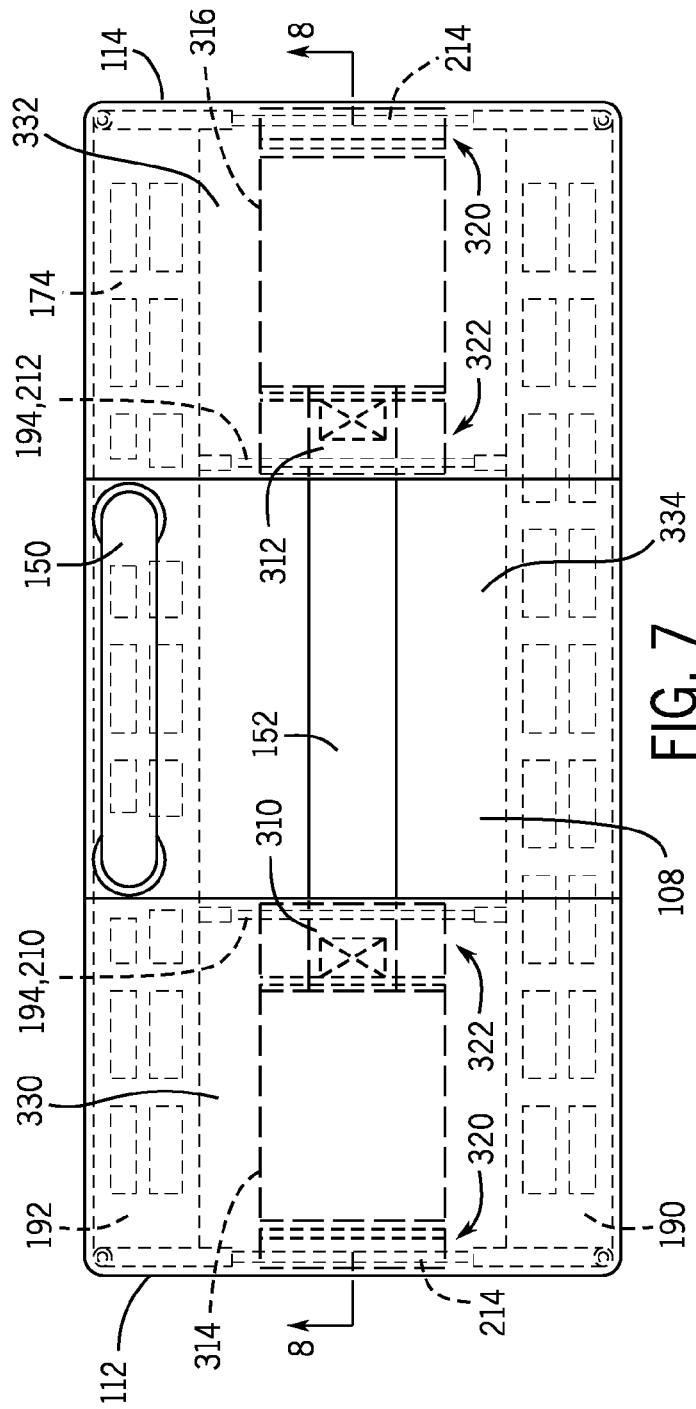


FIG. 3









EUROPEAN SEARCH REPORT

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Y	* abstract; claims 1-15; figures 1-9 *	15	
A,D	EP 2 363 037 B1 (STRATIC LEDERWAREN JACOB BONIFER GMBH [DE]) 20 February 2013 (2013-02-20) * abstract; figures 1,2 *	2-4	
X	WO 2011/089376 A2 (LANDOR & HAWA INT LTD [GB]; SELVI SEDAT [GB]) 28 July 2011 (2011-07-28)	14	
Y	* abstract; claims 1-42; figures 1-4 *	15	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			A45C
Place of search		Date of completion of the search	Examiner
The Hague		6 August 2018	Oliveras, Mariana
CATEGORY OF CITED DOCUMENTS 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 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 & : member of the same patent family, corresponding document			

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 EPO FORM 1503 03.02 (P04C01)



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-13

Luggage article characterised by a carry handle coupled to one or more cross braces.

2. claims: 14, 15

Luggage article characterised by its top panel comprising two pan members extending along its longer edges.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 17 19 6478

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

06-08-2018

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