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(54) **Luggage**

(57) A luggage assembly may include a luggage item (104) and a transport device (102) for the luggage item (104). The luggage item (104) may include a releasable attachment member (138) provided on the luggage item (104). The transport device (102) may include a body (106), a retractable handle (184) joined to the body (106), one or more wheels (130) joined to the body (106), and a releasable attachment member (136) complementary to the releasable attachment member (138) provided on the luggage item (104). The releasable attachment member (136) of the transport device (102) may be positioned along a substantial portion of a periphery of the body (106) and configured to releasably engage the releasable attachment member (138) provided on the luggage item (104) in order to selectively join the luggage item (104) to the transport device (102).

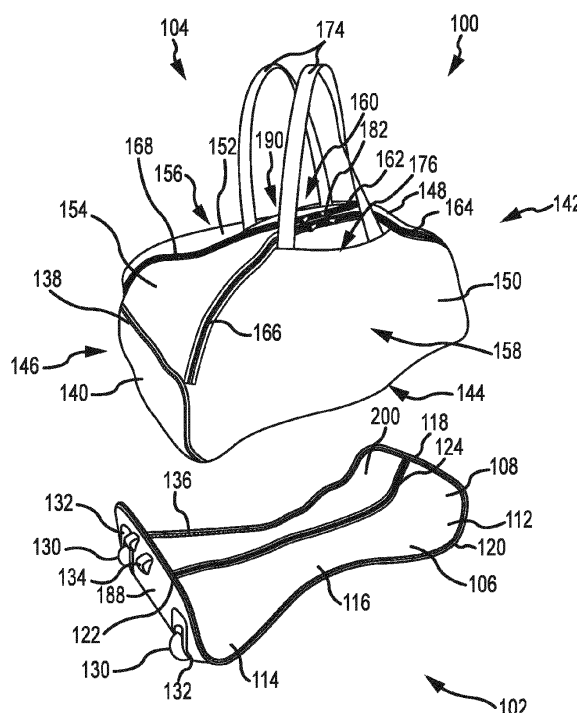


FIG.1A

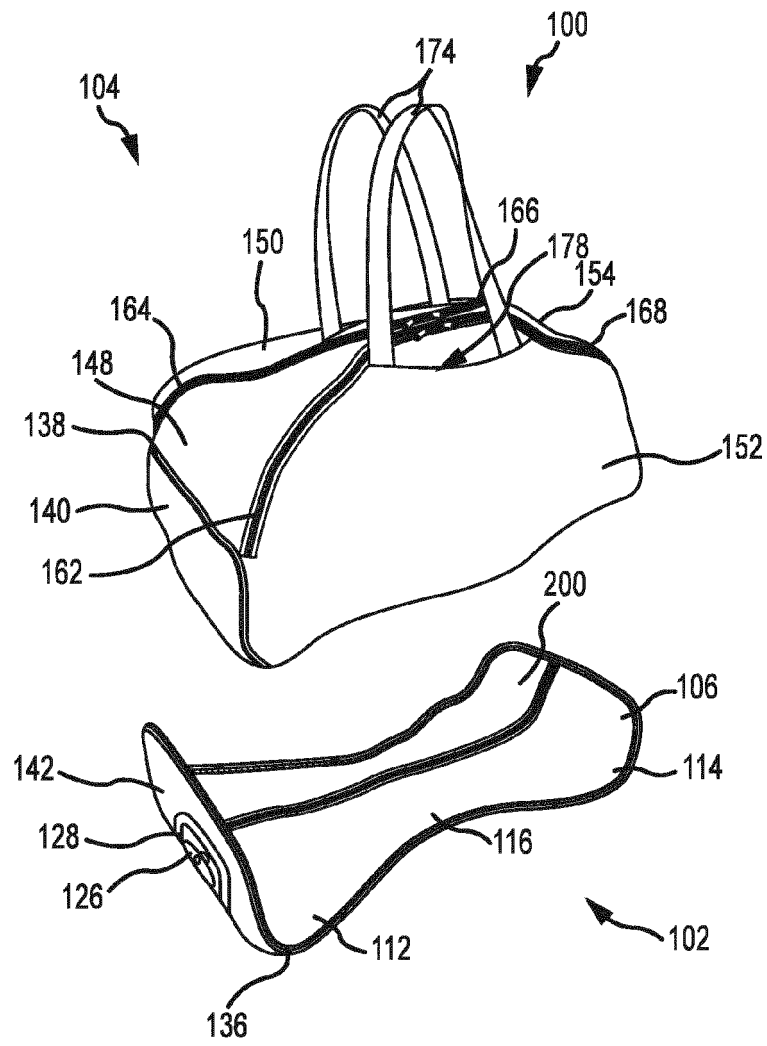


FIG.1B

Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This patent application claims priority to U.S. provisional application number 61/559,985, entitled "Luggage" and filed on November 15, 2011, and U.S. provisional application number 61/705,069, entitled "Luggage" and filed on September 24, 2012, both of which are hereby incorporated by reference in their entireties.

TECHNOLOGICAL FIELD

[0002] The technological field generally relates to luggage, and more particularly to luggage with multi-opening zipper configurations and detachable transport systems for luggage.

BACKGROUND

[0003] Luggage pieces are generally utilized by travelers to pack and transport items.

[0004] Regarding packing or unpacking items, some luggage pieces, such as duffel bags, have substantially linear zippers, which allow a user to access the compartment of the luggage piece to pack and unpack items. However, a linear zipper sometimes makes it difficult for large or wide items to pass through the opening formed in the luggage using the zipper. In addition, the opening created by the linear zipper often does not offer a user a good view of the inside of the luggage piece, thus making it difficult for a user to pack the items neatly or to find an item contained therein.

[0005] Regarding transporting the luggage piece and the items contained therein, lifting and carrying the luggage piece may be cumbersome or difficult for some. Many luggage pieces include wheels and a handle to enable rolling transport of the luggage piece. Generally, the wheels and the handle may be non-detachably joined to the luggage piece such as by fastening with rivets or by sewing, welding, adhering, and combinations thereof. In some cases, the wheels and the handle may be unnecessary or undesirable for transporting the luggage piece. In addition, the wheels and handle may generally add rigidity to the luggage piece making storage of the luggage piece difficult.

[0006] Some approaches to configuring and/or transporting luggage are shown in the following documents: EP0649613, EP0989811, EP1253837, EP1327396, EP 1958530, EP2253432, OHIM001105621-0002, US2005 0145458, US20080050050, US20080279483, US2009 0159622, US20110108381, US2254578, US3976113, US5464080, US5484046, US6279926, US6575274, US 6883654, US7226073, USD113446, USD251083, USD5 12220, WO03053186, WO2004080230, and WO2006 083633. These proposals, however, may be improved.

[0007] Regarding opening configurations for luggage

pieces, some references suggest using multiple zippers to create a relatively large non-linear shaped opening. These approaches, however, may lack proper securement of the various portions of the luggage piece that are zipped together by the multiple zippers. Without proper securement, when the opening is closed by the zippers, the load contained within the luggage may force at least some of the zippers to undesirably move towards their open configuration, thus resulting in an undesirable sudden opening of the luggage piece that exposes the items contained therein.

[0008] Regarding transporting luggage pieces, although some references suggest the possibility of using a wheel assembly that could be temporarily joined to and removed from the luggage piece, such assembly is usually rigid and/or cumbersome, which may make the luggage piece that is joined to the wheel assembly difficult to maneuver. In addition, such assembly and the luggage piece are typically joined at certain discrete locations (e.g., along certain edge portions) of the luggage piece, thus requiring multiple joining operations by a user to secure the luggage piece to the wheel assembly but not necessarily providing a secure attachment between the two. Further, due to its rigidity, extra space may be required for storage of such assembly. Moreover, the frame or handle structures in the existing assembly are often exposed, resulting in potential scuffing or other damage to the handle structures. Moreover, the existing assemblies often lack a desirable aesthetic appearance, thus potentially reducing a consumer's interest in using the wheel assembly with a piece of luggage.

[0009] It is therefore desirable to provide an improved luggage configuration and/or a transport system or device thereof that address the above described problems and/or that more generally offer improvements or an alternative to existing arrangements.

SUMMARY

[0010] Described herein are luggage items, transport systems or devices for the luggage items, and luggage assemblies including a luggage item and a transport system or device.

[0011] The transport systems or devices may include wheels and a handle. The transport systems or devices may be detachably joined to luggage pieces and may be utilized to transport luggage pieces by rolling transport. The transport systems or devices may be used with a number of luggage pieces including duffel bags, soft sided luggage, hard sided luggage, and the like. When detached from the luggage pieces, the transport systems or devices may be stored separately from the luggage pieces and the luggage pieces may be used alone. In some implementations, the transport systems or devices may be collapsed such as for storage or for manual transport.

[0012] In one implementation of the luggage assembly, the luggage assembly may include a luggage item and

a transport device. The luggage item may include a releasable attachment member provided on the luggage item. The transport device may include a body, a retractable handle joined to the body, and one or more wheels joined to the body. The transport device may further include a releasable attachment member complementary to the releasable attachment member provided on the luggage item. The releasable attachment member of the transport device may be positioned along a substantial portion of a periphery of the body. The releasable attachment member of the transport device may be configured to releasably engage the releasable attachment member provided on the luggage item in order to selectively join the luggage item to the transport device.

[0013] In some implementations, the body of the transport device may be relatively flexible.

[0014] In some implementations, the releasable attachment member of the transport device may include a single continuous member positioned along the substantial portion of the periphery of the body.

[0015] In some implementation, the single continuous member may preferably include at least one of a zipper mechanism or a hook-and-loop closure mechanism.

[0016] In some implementations, the substantial portion of the periphery of the body may include at least 50% of the periphery of the body, preferably no less than 75%, more preferably no less than 90%, even more preferably an entirety of the periphery of the body.

[0017] In some implementations, the body may include an upper region, a middle region and a lower region. The upper region may be configured to extend away from the middle region at a first angle measured from a front surface of the middle region to a front surface of the upper region. Additionally, the lower region may be configured to extend away from the middle region at a second angle measured from the front surface of the middle region to a front surface of the lower region. The retractable handle may be joined to the upper region. The one or more wheels may be joined to the lower region.

[0018] In some implementations, the upper region, the middle region, and the lower region may preferably include a C-shape structure.

[0019] In some implementations, at least one of the first and second angles may be a varying angle. In some implementation, at least one of the first or second angles may be between approximately 40 to approximately 140 degrees.

[0020] In some implementations, the upper region may be configured to overlap a portion of a top side of the luggage item. In some implementations, the portion of the top side overlapped may include no less than 20%, preferably no less than 50%, more preferably no less than 80% of a surface area of the top side of the luggage item.

[0021] In some implementations, the lower region may be configured to overlap a portion of a bottom side of the luggage item. In some implementations, the portion of the bottom side overlapped may include no less than

20%, preferably no less than 50%, more preferably no less than 80% of a surface area of the bottom side of the luggage item.

[0022] In some implementations, the upper region may be configured to be coextensive with the top side of the luggage item along at least one of a depth dimension or a width or transverse dimension of the top side.

[0023] In some examples, the upper region may be configured to be coextensive with a depth dimension of the luggage item measured from a front side to a back side of the luggage item.

[0024] In some implementations, the lower region may be configured to be coextensive with the bottom side of the luggage item along at least one of a depth dimension or a width or a transverse dimension of the bottom side.

[0025] In some examples, the lower region may be configured to be coextensive with a depth dimension of the luggage item measured from a front side to a back side of the luggage item.

[0026] In some implementations, a central portion of the body may be narrower than at least one of upper and lower end portions of the body.

[0027] In some implementations, the upper, middle and lower regions of the body may extend along a longitudinal dimension of the body. At least one of the upper or lower region may define a transverse dimension larger than a transverse dimension of the middle region.

[0028] In some implementations, the retractable handle may further include a pivot joint assembly. The pivot joint assembly may be configured to pivot to enable the detachable transport device to fold at the middle region of the body.

[0029] In some implementations, the body may further include a support member mounted to the lower region of the body. The support member may be configured to be extendable along a surface of the lower region upon which the support member is mounted to support the luggage item when the luggage item is configured in an upright position.

[0030] In some implementations, at least a portion of the periphery of the body may include in general a curvilinear shape.

[0031] In some implementations, at least a portion of the body may include in general an hourglass shape.

[0032] In some implementations, the body may further include a front panel and a rear panel defining an internal compartment of the body. A portion of the retractable handle may be received within the internal compartment of the body.

[0033] In some implementations, the body may further include a closure mechanism joined to the front panel for selectively exposing the internal compartment of the body.

[0034] In some implementations, the releasable attachment member of the body and the complementary releasable attachment member on the luggage item may collectively take the form of at least one of a zipper mechanism, a hook-and-loop closure mechanism, or a snap

closure mechanism.

[0035] In some implementations, the luggage item may include one or more materials defining an internal compartment of the luggage item. The internal compartment of the luggage item may be selectively accessed through an X-shaped opening defined by selective movement of first and second portions of the one or more materials relative to other portions of the one or more materials. The first and second portions may each terminate proximate to a center of the X-shape.

[0036] In one implementation of a luggage item, the luggage item may include one or more materials defining an internal compartment of the luggage item. The internal compartment of the luggage item may be selectively accessed through an X-shaped opening defined by selective movement of first and second portions of the one or more materials relative to other portions of the one or more materials. The first and second portions may each terminate proximate to a center of the X-shape. The luggage item may further include two or more closure mechanisms operatively joined to the one or more materials. The two or more closure mechanisms may be configured to selectively couple and uncouple the first and second portions of the one or more materials to the other portions of the one or more materials in order to selectively close and open the X-shaped opening. The luggage item may also include a securing mechanism. The securing mechanism may be configured to releasably secure the first and second portions of the one or more materials to each other regardless of whether or not the other portions of the one or more materials are coupled to or uncoupled from the first and second portions of the one or more materials.

[0037] In some implementations, the securing mechanism may include at least one of a hook-and-loop closure mechanism or a snap closure mechanism.

[0038] In some implementations, the luggage item may further include a releasable attachment member for selectively joining the luggage item to a complementary releasable attachment member of a transport device.

[0039] In some implementations, the releasable attachment member of the luggage item may surround or encompass or enclose an area across three continuous sides of the luggage item.

[0040] In some implementations, the releasable attachment member of the luggage item may include a single continuous member.

[0041] In one implementation of a detachable transport system, the detachable transport system for a luggage piece may include a flexible or soft sided body with an hourglass shape, and a releasable attachment member may extend along an outer periphery of the flexible or soft sided body. A retractable handle may be provided on an upper region of the flexible or soft sided body, and one or more wheels may be provided on a lower region of the flexible or soft sided body. The releasable attachment member may releasably join with a complementary releasable attachment member provided on the luggage

piece to enable the retractable handle and the one or more wheels to be used to transport the luggage piece and the detachable transport system.

[0042] In some implementations, the hourglass shape of the flexible or soft sided body may include a relatively narrower middle region.

[0043] In some implementations, the releasable attachment member may substantially extend around an entire circumference of the outer periphery of the hourglass shaped flexible or soft sided body.

[0044] In some implementations, the retractable handle may further include a pivot joint assembly. The pivot joint assembly may be arranged within the flexible or soft sided body. The pivot joint assembly may be configured to pivot to enable the detachable transport system to fold at a middle region of the flexible or soft sided body between the upper and lower regions.

[0045] In some implementations, the pivot joint assembly may further include a telescoping member joined to the handle. As the pivot joint assembly pivots, the telescoping member may be configured to telescope into the pivot joint assembly and to retract the handle.

[0046] In another implementation of a luggage transport system, the luggage transport system may include a detachable transport system and a luggage piece. The detachable transport system may include a flexible or soft sided body with a contoured shape. A releasable attachment member may extend along an outer periphery of the flexible or soft sided body. A retractable handle may be provided on an upper region of the flexible or soft sided body, and one or more wheels may be provided on a lower region of the flexible or soft sided body. The luggage piece may include a flexible or soft sided enclosure with one or more closure members with a bottom panel having a contoured shape corresponding to the contoured shape of the flexible or soft sided body, and a releasable attachment member may extend along an outer periphery of the contoured bottom panel. The releasable attachment members of the detachable transport system and the luggage piece may be configured to releasably join with one another.

[0047] In some implementations, when the luggage piece is releasably joined with the detachable transport system, the retractable handle may be arranged at a top side of the luggage piece. The one or more wheels may be arranged at a bottom side of the luggage piece. A portion of the soft sided body may be arranged along a length of a back side of the luggage piece and may include a narrower middle region relative to the upper and lower regions. The back side may be arranged between the top side and the bottom side.

[0048] In some implementations, the retractable handle may further include a pivot joint assembly. The pivot joint assembly may be configured to pivot to enable the detachable transport system to fold at a middle region of the flexible or soft sided body between the upper and lower regions.

[0049] In some implementations, the luggage piece

may be joined to the detachable transport system. The luggage piece may be configured to fold at the back panel as the pivot joint assembly pivots.

[0050] In some implementations, the pivot joint assembly may further include a telescoping member joined to the handle. As the pivot joint assembly pivots, the telescoping member may be configured to telescope into the pivot joint assembly and to retract the handle.

[0051] In another implementation, a luggage item or case may include a luggage body having a contoured shape and having a top elongated face, a bottom elongated face, opposing side faces, and first and second opposing end faces, the faces together defining an internal compartment and at least one of the elongated faces is relatively rigid and wherein the balance of the body is relatively flexible. A zipper closure mechanism may be defined in the top elongated face for selectively exposing the internal compartment of the body. A retractable handle may be provided at an upper region of the luggage and extendable and retractable along the bottom elongated face. One or more wheels may be mounted at least partially on the second opposing end face. A support member may be mounted on the second opposing end face, the support member being extendable along the face upon which it is mounted to support the body when standing on the second opposing end face.

[0052] Additionally, the support member may include two bosses mounted on the second face, each boss defining a recess. The support member may also define an extension bar having a support portion and at least two leg portions, each of the leg portions being selectively receivable in a corresponding recess. The extension bar may be movable between an extended position and a retracted position, wherein in the extended position at least a portion of the support bar extends beyond the interface of the top elongated face and the second opposing end face.

[0053] Further, the zipper closure mechanism may include two or more zipper closure mechanisms forming a general X-shape on the elongated top face. Even further, the luggage item or case may be modified so that the zipper closure mechanism may include four segments, each segment extending from a separate portion of the elongated top face and gathering in generally the middle portion of the elongated top face to allow access to the internal compartment when unzipped, and may form an X-shape.

[0054] The luggage items according to the various implementations may provide a user with a selectively sized and shaped opening for packing or unpacking items and may provide a proper securement among the various portions of materials forming such selectively sized and shaped opening. The transport systems or devices according to the various implementations is easy to use and flexible, yet still provide a secured attachment between the transport device and a luggage item and/or a clean and aesthetically appealing appearance when joined to the luggage item.

[0055] This summary is given to aid in understanding the luggage transport or the luggage item, and one of ordinary skill in the art will understand that each of the various aspects and features of the luggage transport or the luggage item may advantageously be used separately in some instances, or in combination with other aspects and features of these devices in other instances.

BRIEF DESCRIPTION OF THE DRAWINGS

[0056] The luggage items and the transport systems and devices for luggage items will now be described by way of example only with reference to the following figures in which:

[0057] Figs. 1A-1B show perspective views of the luggage transport system with the detachable transport system separated from a luggage piece according to a first implementation.

[0058] Figs. 2A-2F show front, back, bottom, top, left side and perspective views of the luggage transport system of Fig. 1, with the detachable transport system and the luggage piece joined.

[0059] Figs. 3A-3D show views of the detachable transport system as the detachable transport system moves from an extended position to a folded position.

[0060] Fig. 4 is an exploded view of the various components that may form the detachable transport system of Fig. 1.

[0061] Figs. 5A-5G show a telescopic foldable towing handle that may be used with the detachable transport system according to some embodiments.

[0062] Fig. 6 shows a perspective view of the detachable transport system according to a second implementation.

[0063] Fig. 7 shows a perspective view of a detachable cover that may be detachably joined with a luggage piece as an alternative to the detachable transport system.

[0064] Fig. 8A shows a segment of snap closures that may releasably join the detachable transport system to the luggage piece.

[0065] Fig. 8B shows a segment of hook and loop closures that may releasably join the detachable transport system to the luggage piece.

[0066] Figs. 9A and 9B show an example of a closure panel with a securing mechanism for use on the luggage transport system of Figs. 1A and 1B.

[0067] Fig. 10 shows a lock for use with the luggage transport system of Figs. 1A and 1B.

[0068] Figs. 11A through 11D show a support member for use with the luggage transport system of Figs. 1A and 1B.

[0069] Fig. 11E is a section taken along line 11E-11E.

[0070] Fig. 12 shows another example of a support member for use with the luggage transport system of Figs. 1A and 1B.

[0071] Fig. 13 shows a luggage transport system wherein the soft-sided body is not removable from the base.

DETAILED DESCRIPTION

[0072] Described herein are detachable transport devices and systems for duffel bags, soft-sided bags, hard-sided bags, or other types of luggage pieces. In some implementations, the detachable transport device and system may be configured with a relatively flexible body, wheels and a retractable handle, and the detachable transport system may detachably join to a luggage piece for rolling transport of the luggage piece. The flexible body of the transport system may include a soft-sided outer layer or cover which may be formed using many relatively soft or non-rigid, flexible materials, such as natural or man-made woven or non-woven fabrics, polymer sheets, or natural materials, such as leather, and so on. In some implementations, the flexible body may additionally but optionally include non-soft, relatively rigid yet still relative flexible sheets or panels positioned inside the outer layer or cover as structural and shape reinforcements. In some implementations, the flexible body may include a more rigid or harder member as an anchor plate for attaching components, such as wheels. The detachable transport system may include a telescoping handle for a user to grasp when towing the luggage piece. In some implementations, the detachable transport system may be collapsed for transport and storage. In some implementations, the detachable transport system and the luggage piece may be provided together in a luggage transport system. In some implementations, the luggage piece may be coupled to the transport system in a manner such that the luggage piece may not be detachable from the rest of the transport system.

[0073] The detachable transport systems may have any size and shape. The flexible body of the detachable transport system may include a longitudinal dimension and may include along its longitudinal dimension an upper end portion, a lower end portion and a central portion positioned between the upper end portion and the lower end portion. The central portion may be formed with a width dimension different from at least one of the width dimensions of the upper end portion or the lower end portion. Accordingly, the flexible body of the detachable transport system may define a varying width across its length. In some implementations, the flexible body of the detachable transport system may define a contoured or curvilinear shape. Specifically, the upper end portion of the flexible body may include a contoured or curvilinear upper region, the lower end portion of the flexible body may include a contoured or curvilinear lower region, and the central portion of the flexible body may include a relatively narrower middle region. In some examples, the contoured or curvilinear shape may be similar to an hourglass shape in which the upper and the lower regions may each be configured with a bulb-like shape and the middle region may be configured as an extension of the narrow portions of the bulb-like shape of the upper and lower regions. In some examples, the central portion or the middle region itself may define an hourglass shape

as the peripheries of the central portion or the middle region may taper outwardly as they extend toward the upper and lower regions.

[0074] Turning to the luggage transport system 100 depicted in Figs. 1A and 1B, the detachable transport system 102 is shown detached from the luggage piece 104. The detachable transport system 102 may include a flexible body 106 with a front panel 108 joined to a back panel 110. The flexible body 106, as well as each of the front and back panels 108, 110, may include a contoured or hourglass shape with an upper region 112, a lower region 114 and a middle region 116 extending along a longitudinal dimension of the flexible body 106. The middle region 116 may be configured with a relatively narrower width or transverse dimension compared to the upper and lower regions 112, 114. The upper region 112 may extend away from the middle region 116 at an angle measured between a front surface of the middle region 116 (i.e., the portion of the front panel 108 at the middle region 116) and a front surface of the upper region 112 (i.e., the portion of the front panel 108 at the upper region 112). Similarly, the lower region 114 may extend away from the middle region 116 at an angle measured between the front surface of the middle region 116 and a front surface of the lower region 114 (i.e., the portion of the front panel 108 at the lower region 114). Depending on the shape of the luggage item 104 the detachable transport system 102 is joined to, the angle between the upper region 112 and the middle region 116 and the angle between the lower region 114 and the middle region 116 may vary. Since the body 106 is relatively flexible, the upper region 112 and/or the lower region 114 may extend away from the middle region 116 at any angle from approximately 40 to approximately 140 degrees to conform to the shape of the luggage piece 104 to which the detachable transport system 102 is joined. The upper region 112 and/or the lower region 114 may fold toward the middle region 116, thus extending away from the middle region 116 at an angle smaller than 40 degrees for storage as described below.

[0075] The upper region 112 may define a top edge 118 that transitions to the side edges 120 by a rounded contour. The side edges 120 may extend from the upper region 112 to the middle region 116 by tapering inwardly. Transitioning from the middle region 116 to the lower region 114, the side edges 120 may expand to a width that may be approximately the same as the width of the upper region 112 and may transition to the bottom edge 122 by a rounded contour. In some implementations, the tapering and expanding of the side edges 120 and the rounded contour transitioning the side edges 120 to the top and bottom edges 118, 122 may generally define an hourglass shape for the detachable transport system 102.

[0076] The front panel 108 of the flexible or soft sided body 106 may include a closure member 124 to access to an interior of the soft sided compartment described below in connection with Fig. 4. The back panel 110 at

the upper region 112 of flexible or soft sided body 106 may be configured to be joined with a handle 126 and a handle housing 128 (see Fig. 1B), and the lower region 114 of the flexible or soft sided body 106 may be configured to be joined with one or more wheels 130, wheel housings 132 and stabilizing flanges 134.

[0077] A releasable attachment member 136 (e.g., one side of a zipper assembly) may be provided on a peripheral edge of the flexible or soft sided body 106 and may be configured to releasably join to a complementary releasable attachment member 138 (e.g., a second side of a zipper assembly) provided on the luggage piece 104. In some examples, the releasable attachment member 136 may be provided along a substantial portion (i.e., at least 50%) of the periphery of the flexible or soft sided body 106. In some embodiments, the releasable attachment member 136 may be provided along at least 50%, preferably 75% or more of the periphery, more preferably 90% or more, or even more preferably along the entire periphery of the body 106, for better securement of the luggage item 104 to the detachable transport system 102. In some embodiments, the releasable attachment member 136 may be one single continuous member provided to the periphery of the flexible or soft sided body 106 for easy attachment. In some examples, the releasable attachment member 136 may include two or more releasable attachment elements provided along segments of the periphery of the flexible or soft sided body 106.

[0078] The releasable attachment members 136, 138 may be joined and detached from one another by a releasable attachment member pull 212 (e.g., a zipper pull of a zipper assembly in Fig. 2B), which may be provided on one or both of the flexible or soft sided body 106 or the luggage piece 104.

[0079] The luggage piece 104 may be configured as a soft sided bag and may include a bottom panel 140 with a contoured shape (e.g., an hourglass shape) similar to the contoured shape of the flexible or soft sided body 106 of the detachable transport system 102. The bottom panel 140 may extend along a portion of the top side 142, back side 144 and bottom side 146 of the luggage piece 104. At the top side 142 of the luggage piece 104, the bottom panel 140 may extend across a portion of the length of the top side 142 and may join along its edges to the upper panel 148 and the first and second side panels 150, 152. At the bottom side 146 of the luggage piece 104, the bottom panel 140 may extend across a portion of the length of the bottom side 146 and may join along its edges to the lower panel 154 and the first and second side panels 150, 152. At the back side 144 of the luggage piece 104, the bottom panel 140 may extend along the length of the back side 144 and may join to the first side panel 150 at the left of the back side 144 and to the second side panel 152 at the right of the back side 144.

[0080] A releasable attachment member 138 may be provided around the periphery of the bottom panel 140 and may be configured to releasably join to the releasable

attachment member 136 of the detachable transport system 102. For example, one side 138 of a zipper assembly on the luggage piece 104 may include a complementary configuration to another side 136 of a zipper assembly provided on the detachable transport system 102, and the two sides 136, 138 of the zipper assembly may be joined by a zipper pull 212 disposed on one or the other of the luggage piece 104 and the detachable transport system 102. The zipper pull 212 may be pulled in one direction to draw the two sides 136, 138 of the zipper assembly together to join the luggage piece 104 and the detachable transport system 102 together. Once the luggage piece 104 and detachable transport system 102 are joined, the two may be detached from one another by pulling the zipper pull 212 in an opposite direction along the periphery of the detachable transport system 102 and the bottom panel 140.

[0081] Similar to the releasable attachment member 136 of the detachable transport system 102, the releasable attachment member 138 of the luggage piece 104 may be one single continuous member or two or more releasable attachment elements provided to the periphery of the bottom panel 140 of the luggage piece 104. The releasable attachment member 138 of the luggage piece 104 may be provided along a substantial portion (i.e., at least 50%) of the periphery of the bottom panel 140. In some embodiments, the releasable attachment member 138 may be provided along at least 50%, or preferably 75% or more, more preferably 90% or more, or even more preferably along the entire periphery of the bottom panel 140, for better securement of the luggage item 104 to the detachable transport system 102.

[0082] Providing the releasable attachment members 136, 138 along substantial portions of the respective peripheries of the flexible body 106 of the detachable transport system 102 and the bottom panel 140 of the luggage piece 104 securely attaches the luggage piece 104 to the detachable transport system 102 and restricts movement of one relative to the other. Further, such attachment or securement between the two reduces the likelihood that the luggage piece 104 will be undesirably separated from the detachable transport system 102. A user thus can transport the luggage item 104 using the detachable transport system 102 with greater confidence that the luggage piece 104 will remain attached to the detachable transport system 102. In addition, when each of the attachment members 136, 138 is configured as one continuous member, attaching and detaching the luggage piece 104 to and from the detachable transport system 102 requires a single zipping/unzipping operation rather than multiple operations when more than one zipper is utilized to join the luggage piece 104 to the detachable transport system 102. A single zipper may also create a relatively clean finished appearance to the combination of the luggage piece 104 and the detachable transport system 102.

[0083] Because the bottom panel 140 extends along a portion of the top and bottom sides 142, 146 of the

luggage piece 104 and the detachable transport system 102 may be joined to the bottom panel 140, the detachable transport system 102 may form a c-shaped cradle surrounding portions of the top, back and bottom sides 142, 144, 146 of the luggage piece 104. Accordingly, the upper region 112 of the detachable transport system 102 may cover or overlap a portion of the top side 142 of the luggage piece 104, and the lower region 114 of the detachable transport system 102 may cover or overlap a portion of the bottom side 146 of the luggage piece 104. In some examples, the upper region 112 may be configured to cover or overlap no less than 20%, preferably no less than 50%, more preferably no less than 80% of a surface area of the top side 142 of the luggage item 104. Similarly, in some examples, the lower region 114 may be configured to cover or overlap no less than 20%, preferably no less than 50%, more preferably no less than 80% of a surface area of the bottom side 146 of the luggage item 104. In some examples, the upper region 112 and the lower region 114 of the detachable transport system 102 may be configured to be coextensive with a depth dimension of the top side 142 and the bottom side 146, respectively, or coextensive with a depth dimension of the luggage piece 104 measured from a front side 190 to the back side 144 of the luggage piece 104.

[0084] Such surrounding, overlapping or coextensive configuration between the detachable transport system 102 and the top, back and bottom sides 142, 144, 146 of the luggage piece 104 provides added securement of the luggage item 104 to the detachable transport system 102. Especially during transportation, the top and bottom sides 142, 146 of the luggage piece 104 may come into contact with objects that exert a force to the luggage piece 104 in a direction opposite to the direction of travel, the overlapping or coextensive configuration between the upper and lower regions 112, 114 of the detachable transport system 102 and the top and bottom sides 142, 144 of the luggage piece 104 may help prevent accidental detachment of the two caused by such force.

[0085] The handle 126 at the top of the detachable transport system 102 may be used to tow the luggage piece 104 from the top side 142, and the wheels 130 at the bottom of the detachable transport system 102 may be used to roll the luggage piece 104 during towing. The portion of the detachable transport system 102 extending along the length of the bottom side 146 of the luggage piece 104 may provide some support to the bottom side 146 of the luggage piece 104, which may limit sagging of the luggage piece 104 at its bottom side 146 during rolling transport.

[0086] In some embodiments, the luggage piece 104 may include one or more materials that define an internal compartment thereof. The one or more materials may be configured to form a first portion 148, for example, an upper panel 148, a second portion 154, for example, a lower panel 154, a third portion 150, for example, a first side panel 150, and a fourth portion 152, for example, a second side panel 152. While the upper panel 148 is

referred to as the first portion, the lower panel is referred to as the second portion, and so on, this is merely for convenience to aid the reader's understanding of the luggage piece 104. Thus, any one of the upper, lower, first side or second side panels 148, 150, 152, 154 may be referred to as the first portion, any of the other three panels may be referred to as the second portion, and so on.

[0087] Each of the first, second, third and fourth portions 148, 150, 152, 154 may include a wider end adjacent to a corresponding portion of the periphery of the bottom panel 140, a tapered end terminating at a center of the front side 190 of the luggage piece 104 when the luggage piece 104 is in a closed configuration (see Figs. 1A, 1B and 2A), and two sides that join the wider end to the tapered end and that may be curved or otherwise suitably shaped. In some embodiments, the two sides may converge at the tapered end thus forming in general a triangular shaped portion of the luggage piece 104. In some embodiments, the wider end, the tapered end, and the two sides may collectively define in general a trapezoid shaped portion of the luggage piece 104. In some embodiments, the wider end, the tapered end and the two sides in between may take the form of four portions of a continuous smooth circumference of the first, second, third or fourth portion 148, 150, 152, 154 of the luggage item 104, thus defining a shape with rounded corners or no corners.

[0088] In some implementations, the luggage piece 104 may include a cross-shaped or X-shaped closure system 160 with four closure members 162, 164, 166, 168 extending diagonally from the four corners of the luggage piece 104 to the center of the luggage piece 104. The cross-shaped or X-shaped closure system 160 may be joined to the two sides of each portion 148, 150, 152, 154 and may be configured to selectively couple and uncouple the first portion or the upper panel 148 and the second portion or the lower panel 154 to the third and fourth portions or the first and second side panels 150, 152 of the luggage piece 104 to selectively close and open the luggage piece 104. For example, the upper panel 148 of the luggage piece 104 may carry along each of its two sides a portion of the first closure member 162 and a portion of the second closure member 164. The first side panel 150 of the luggage piece 104 may carry along each of its two sides a portion of the second closure member 164 and a portion of the third closure member 166. The lower panel 154 of the luggage piece 104 may carry along each of its two sides a portion of the third closure member 166 and a portion of the fourth closure member 168. The second side panel 152 of the luggage piece 104 may carry along each of its two sides a portion of the fourth closure member 168 and a portion of the first closure member 162. In this example, as the portions of the first closure member 162 are closed, the side of the upper panel 148 and the side of the second side panel 152 carrying the first closure portions may be joined up to the center of the front side 190 of the luggage piece 104. As the portions of the second closure member 164

are closed, the side of the upper panel 148 and the side of the first side panel 150 carrying the second closure portions may be joined up to the center of the front side 190 of the luggage piece 104. As the portions of the third closure member 166 are closed, the side of the lower panel 154 and the side of the first side panel 150 carrying the third closure portions may be joined up to the center of the front side 190 of the luggage piece 104. As the portions of the fourth closure member 168 are closed, the side of the lower panel 154 and the side of the second side panel 152 carrying the fourth closure portions may be joined up to the center of the front side 190 of the luggage piece 104. As may be appreciated, upon closing the four closure members 162, 164, 166, 168, the luggage piece 104 may be in the closed configuration shown in Figs. 1A and 1B with the tapered ends of the first, second, third and fourth portions 148, 150, 152, 154 of the luggage piece 104 terminating proximate to the center of the X-shape.

[0089] By selective opening of one or more of the closure members 162, 164, 166, 168 and by selective movement of one or more of the four portions 148, 150, 152, 154 relative to the other portions, an opening may be formed for accessing the internal compartment of the luggage piece 104. In some embodiments, an X-shaped opening may be defined by selective movement of the upper panel 148 and the lower panel 154 relative to the first side panel 150 and the second side panel 152 of the luggage piece 104. The X-shaped opening may also be defined by selective movement of the first side panel 150 and the second side panel 152 relative to the upper panel 148 and the lower panel 154 of the luggage piece 104. Specifically, by selectively opening the closure members 162, 164, 166, 168, the tapered ends of the upper and lower panels 148, 154 may be selectively moved away from the center of the X-shape forming an X-shaped opening, while the tapered ends of the first and second side panels 150, 152 may remain at the center of the X-shape, and may be optionally attached to each other by an additional securing mechanism as described below. Alternatively, the tapered ends of the upper and lower panels 148, 154 may remain at the center of the X-shape and may be optionally attached to each other by an additional securing mechanism as described below. The tapered ends of the first and second side panels 150, 152 may be selectively moved away from the center of the X-shape, thus defining an X-shaped opening.

[0090] Other shapes of the opening may be formed by selective opening of the closure members 162, 164, 166, 168 and by selective movement of one or more of the four portions 148, 150, 152, 154 relative to the other portions. In some embodiments, a triangular shaped opening may be formed by selective movement of only one of the four portions 148, 150, 152, 154 relative to the other three. In this instance, only two closure members that are coupled to that portion of the luggage piece 104 may be opened while other closure members may remain closed. In some embodiments, a larger triangular shaped

opening may be formed by selective movement of two adjacent portions of the four portions 148, 150, 152, 154 relative to the other two. In this instance, three closure members that are coupled to these two opened portions may be opened while the fourth closure member may remain closed.

[0091] An X-shaped opening or an opening of other shapes may be desirable when a user only needs a small opening to retrieve select items from the luggage piece 104, while a fully opened configuration is still available when the user desires to pack or unpack the luggage item 104.

[0092] The luggage piece 104 may include additional closure members such as snap closure 170 (see Fig. 8A) or hook and loop closures 172 (see Fig. 8B) for securing the panels together in the closed configuration. For example, a portion of the upper and lower panels 148, 154 in an area proximate to the center of the luggage piece 104 may include closure members that may releasably join the upper and lower panels 148, 154. In addition or alternatively, the first and second side panels 150, 152, in an area proximate the center of the luggage piece 104 may include releasable closure members.

[0093] In some implementations, shoulder straps 174 shown in Figs. 1A and 1B may be provided in a central area of the first and second side panels 150, 152. The shoulder straps 174 may be stowed in a first side pocket 176 and a second side pocket 178 that may respectively be provided by the first and second side panels 150, 152.

[0094] Turning to Figs. 2A-2F, the detachable transport system 102 is shown joined to the luggage piece 104. Fig. 2A shows a front side view of the detachable transport system 102 joined to the luggage piece 104 by the releasable attachment members 136, 138 provided on the detachable transport system 102 and the luggage piece 104. The closure panel 180 may cover the closure pulls 182 (e.g., zipper pulls) when the luggage piece 104 is in the closed configuration of Fig. 2A.

[0095] Fig. 2B shows a back side view of the detachable transport system 102 joined to the luggage piece 104. The releasable attachment members 136, 138 may follow the contoured or hourglass shape of the soft sided compartment of the detachable transport system 102 and the contoured or hourglass shape of the bottom panel 140 of the luggage piece 104. In this implementation, a lower portion of each of the first side panel 150 and second side panel 152 may form a back side 144 of the luggage piece 104 along with a portion of the bottom panel 140, and the side panels 150, 152 may each be exposed when the detachable transport system 102 is joined to the bottom panel 140 of the luggage piece 104. The hourglass configuration of the detachable transport system 102 matching the hourglass shaped configuration of the bottom panel 140 may enable the upper, lower, first side and second side panels 148, 150, 152, 154 of the luggage piece 104 to take the shape of the contents within the luggage piece 104 without interference from the components of the detachable transport system 102.

In some implementations, the handle 126 and any handle members (e.g., the retractable handle assembly 184 of Fig. 4 or the telescopic foldable towing handle 186 of Figs. 5A-5F) or wheel support structures provided by the detachable transport system 102 may give some support to the back side 144 of the luggage piece 104 in an area corresponding to the bottom panel 140 of the luggage piece 104. In Fig. 2B, the handle 126 is shown recessed in the handle housing 128 of the detachable transport system 102. It may be appreciated that the handle 126 may be extended from the handle housing 128 and may be used to tow the luggage piece 104 joined to the detachable transport system 102 by rolling transport via the wheels 130 of the detachable transport system 102.

[0096] Fig. 2C shows a bottom plan view of the detachable transport system 102 joined to the luggage piece 104 and illustrates that the third and the fourth closure members 166, 168 of the luggage piece 104 may be accessible when the releasable attachment members 136, 138 are joined to one another. That is, while the detachable transport system 102 is joined to the luggage piece 104, the luggage piece 104 may be opened and closed by the third and fourth closure members 166, 168. In Fig. 2C, the wheel 160 and wheel housing 132 may be arranged on the sides of the bottom surface 188 of the detachable transport system 102 in an area proximate where the bottom surface 188 transitions to the back surface 192 of the detachable transport system 102. One or more stabilizing flanges 134 may be arranged in an upper middle region of the bottom surface 188 and may provide stability to the detachable transport system 102 and luggage piece 104 when the system is balanced on the bottom surface 188.

[0097] Fig. 2D shows a top plan view of the detachable transport system 102 joined to the luggage piece 104 by the releasable attachment members 136, 138 and illustrates that the first and second closure members 162, 164 of the luggage piece 104 may be accessible in the configuration shown. The handle 126 retracted in the handle housing 128 of the detachable transport system 102 may be extended from the detachable transport system 102 without interfering with the operation of the first and second closure members 162, 164.

[0098] Fig. 2E shows a left side view of the detachable transport system 102 joined to the luggage piece 104. The second side panel 152 extends along the front side 190, left side 156 and back side 144 of the luggage piece 104. The right side 158 of the detachable transport system 102 and luggage piece 104 joined thereto may appear substantially similar to the left side view of Fig. 2E, and the first side panel 150 may extend along the front side 190, right side 158, and back side 144 of the luggage piece 104. The first and second side panels 150, 152 may join the bottom panel 140 of the luggage piece 104 at the back side 144, and the intersection between the bottom panel 140 and the first and second side panels 150, 152 may be shaped with the bulbous contour and middle region of a contoured or hourglass shaped bottom

panel. Thus, in Fig. 2E it may be appreciated that the releasable attachment member 138 of the luggage piece 104 may extend along the bottom panel 140 on the periphery of the top left side and bottom left side of the luggage piece 104, and may transition to the back side 144 of the luggage piece 104 (see Fig. 2B). While not shown, the right side 158, similar to the left side 156 shown in Fig. 2E, may include the releasable attachment member 138 of the luggage piece 104, which may extend along the bottom panel 140 on the periphery of the top right side and bottom right side of the luggage piece 104, and may transition to the back side 144 of the luggage piece 104 (see Fig. 2B).

[0099] Fig. 2F shows a perspective view of the detachable transport system 102 joined to the luggage piece 104 when the luggage piece 104 is in an opened configuration. The four panels 148, 150, 152, 154 carrying the four closure members 162, 164, 166, 168 may be positioned in the open configuration by drawing the closure pulls 182 to the corners of the front side 190 of the luggage piece 104. Webbing or gussets 194 may be provided between each adjacent panel and may enable the panels 148, 150, 152, 154 to be drawn open to a degree that may prevent stressing the closure members 162, 164, 166, 168 and closure pulls 182 at the corners of the luggage piece 104. In some implementations, the luggage piece 104 may include one or more internal pockets 196 and luggage straps 198. As shown in Fig. 2F, the luggage piece 104 may be arranged in the opened configuration when joined to the detachable transport system 102. From the opened configuration, the luggage piece 104 may be placed in the closed configuration by drawing the four closure pulls 182 to a central portion of the front side 190 of the luggage piece 104 described above in connection with Figs. 1A and 1B.

[0100] Turning to Figs. 3A-3D, the detachable transport system 102 may be configured as a foldable system. Fig. 3A shows the detachable transport system 102 in an initial position in which the wheels 130 and handle 126 are at opposite ends of the detachable transport system 102. In this position, the wheels 130 and handle 126 of the detachable transport system 102 may be used to transport a luggage piece 104 (see Fig. 1A) by joining the releasable attachment member 136 of the detachable transport system 102 with a complementary releasable attachment member 138 (see Fig. 1A) provided on corresponding portions of the luggage piece 104. With reference to Fig. 3B, the middle region 116 of the detachable transport system 102 may fold, such as by collapsing a support member (not shown) arranged within an interior of the detachable transport system 102. As the middle region 116 begins to fold, the upper region 112 and lower region 114 at the front surface 200 of the detachable transport system 102 may begin to move towards one another. The folding may continue as shown in Fig. 3C so that a top surface 142 of the detachable transport system 102 overlaps the bottom surface 188 and the wheels 130 and handle 126 are arranged adjacent to each other.

A flexible strap 202 may join or hold the upper region 112 and lower region 114 together in the folded configuration of the detachable transport system 102 as shown in Fig. 3D. The foldable detachable transport system 102 may be collapsed into a compact shape that may enable the detachable transport system 102 to be individually transported, e.g., carried by the grip 222 or the handle 126 separate from the luggage piece 104, or may be stowed within the luggage piece 104 of Figs. 1A and 1B.

[0101] In some implementations, the luggage piece 104 may be joined to the foldable detachable transport system 102 when the foldable detachable transport system 102 is collapsed. For example, this may enable the luggage piece 104 to be compacted along with the foldable detachable transport system 102 when the two are not in use, such as after the luggage piece 104 is unpacked or when the luggage piece 104 and the foldable detachable transport system 102 are to be stored.

[0102] Turning to Fig. 4, components that may be provided in the detachable transport system 102 are shown in an exploded view. The detachable transport system 102 may include a flexible or soft sided body 106 having a front panel 108 and a back panel 110 joined along their outer periphery, and the front panel 108 may include a compartment closure member 124 with a first side 204 and a second side 206 (such as a zipper assembly) for providing access to a compartment interior 208 defined between the front and back panels 108, 110. The compartment closure 124 (such as a zipper assembly) may be opened and closed using a closure pull 210 (such as a zipper pull). In some implementations, the front panel 108 and the back panel 110 may be formed of a flexible or pliable material such as a fabric or a durable polymer sheet.

[0103] In some implementations, a portion of the retractable handle assembly 184, a body base 214 and other components may be provided within the compartment interior 208 and may be accessible using the closure pull 210. In some implementations, the components within the compartment interior 208 may provide the detachable transport system 102 with some rigidity. For example, one or more sheets may be provided within the compartment and the sheets may have some pliability and strength for maintaining the shape of the flexible or soft sided body 106 when detached from the luggage piece 104. The detachable transport system 102 may be constructed of flexible materials that enable the detachable transport system 102 to fold or collapse described in connection with Figs. 3A-3D without breaking the flexible materials, while at the same time, the flexible materials may have sufficient rigidity to allow the shape of the flexible or soft sided body 106 to be maintained when separated from the luggage piece 104.

[0104] In some implementations, the back panel 110 at the upper region 112 may include an opening sized to receive a handle housing 128 therethrough. The handle housing 128 may receive a telescopic member 216 of the retractable handle assembly 184, described below.

The lower region 114 of the back panel 110 may form wheel housing openings for receiving the wheel housings 132, described below.

[0105] The detachable transport system 102 may include a retractable handle assembly 184 with a handle 126 joined to the telescopic member 216, a retractable handle assembly receiving member 218 for receiving the telescopic member 216 at a first end, and a retractable handle assembly base 220 for joining to the second end of the retractable handle assembly receiving member 218 and to the base 214 of the flexible or soft sided body 106. The detachable transport system 102 may be provided with some rigidity in the portions where the retractable handle assembly 184 is received, for example, due to the telescopic member 216, receiving member 218 and base 220 of the retractable handle assembly 184 being formed of materials such as metal or a substantially inflexible polymer. In some implementations, the retractable handle assembly 184 may be configured as a collapsible handle assembly and may enable the detachable transport system 102 to fold in the manner shown and described in connection with Figs. 3A-3D.

[0106] The body base 214 may be constructed of a polymer sheet material that may provide some rigidity to the lower region 114 of the flexible or soft sided body 106 and may form openings for receiving a portion of the wheel housings 132. The wheel housings 132 may be arranged at the lower region 114 of the flexible or soft sided body 106 and may extend through openings formed in the back panel 110 and in the openings formed in the base 214. In some implementations, the wheel housings 132 may include an axle (not shown) and may support the wheels 130 and enable the wheels 130 to spin. The stabilizing flanges 134 may be fixedly joined to the back panel 110 of the flexible or soft sided body 106 such as through a boss and fastener assembly, welding, adhering, sewing, and the like and may provide some stability to the luggage transport system 100 or the detachable transport system 102 when in an upright position, e.g., when supported by the wheels 130 and stabilizing flanges 134 at the bottom surface 188 of the detachable transport system 102.

[0107] Turning to Figs. 5A-5G, illustrated are a telescopic foldable towing handle 186 and components of the telescopic foldable towing handle 186 that may be utilized in combination with the detachable transport systems 102 disclosed herein. For example, the telescopic foldable towing handle 186 may be used with the detachable transport systems 102 for transporting luggage instead of the retractable handle assembly 184 of Fig. 4, and when not used for luggage transport, the telescopic foldable towing handle 186 may be collapsed and the detachable transport system 102 may be folded into a compact shape as shown in Figs. 3A-3D such as for individual transport and storage.

[0108] Fig. 5A shows a left side view of the telescopic foldable towing handle 186 with a pivot joint 230, a first pivot member 232 and a second pivot member 234 joined

to the pivot joint 230, a telescopic member 236 received by the first pivot member 232, a cable 238 arranged between and joined to the pivot joint 230 and the telescopic member 236, and a handle 240 joined to the telescopic member 236. Fig. 5B illustrates an exploded view of the telescopic foldable towing handle 186 showing separate pivot joint components including the first pivot arm 242, second pivot arm 244, cable pivot covering 246, a pivot fastener 248, and a cable 238.

[0109] With reference to Fig 5B, the handle 240 of the telescopic foldable towing handle 186 may join to a first end 250 of the telescopic member 236 by a boss and fastener assembly (not shown). It may be appreciated that the boss and fastener assemblies provided herein may include various types of mechanical fasteners (e.g., threaded screws, stitches, rivets, snaps and so on), adhesives, welds or any other known connection mechanism. A second end 252 of the telescopic member 236 may be received by a first end 254 of the first pivot member 232 and telescopic member 236 may extend into the interior of the first pivot member 232. A cable 238 may join to an interior of the telescopic member 236, described below. The telescopic member 236 may be configured as a generally elongated hollow tubular structure and may include a circular, rectangular, oval, or other shaped cross section.

[0110] The first pivot member 232 may receive the telescopic member 236 at the first end 254 of the first pivot member 232 and may join to a first pivot arm 242 of the pivot joint assembly 230 at a second end 256 of the first pivot member 232. The first pivot member 232 may be joined to the first pivot arm 242 by a first pivot arm boss 258 (see Fig. 5C) and a first pivot arm fastener assembly (not shown). The first pivot member 232 may be configured as a generally elongated hollow tubular structure and may include a circular or oval-shaped cross section with an internal circumference that is slightly larger than an external circumference of the telescopic member 236.

[0111] The cable 238 may be arranged between the telescopic member 236 and the pivot joint assembly 230. In the assembled state of the telescopic foldable towing handle 186, the first end 260 of the cable 238 may extend through the second end 256 of the first pivot member 232 into the interior of the first pivot member 232 and through the second end 252 of the telescopic member 236 into the interior of the telescopic member 236. The first end 260 of the cable 238 may join to the interior of the telescopic member 236 by a cable boss 262 and cable fastener 264 assembly. The second end 266 of the cable 238 may extend through the first pivot arm 242 of the first pivot housing 268 and may join to the pivot joint 230 in an area corresponding to an interior of the cable pivot covering 246 and the second pivot housing 270 (see Fig. 5D). The cable 238 may be configured to bend and articulate within the pivot joint assembly 230, described below, and may be constructed of a thermoplastic polymer such as polyoxymethylene (POM) (e.g., DuPont Delrin). While Figs. 5A-5D and 5G illustrate the cable 238

with a cable boss configuration 262, 272 at each end, the cable 238 may be configured with cable fasteners 264, 274 at one or both of the first end 260 and the second end 266.

[0112] The pivot joint assembly 230 may include three housing portions: a first pivot housing 268, a second pivot housing 270 and a cable pivot covering 246. The pivot housings 268, 270 may be configured with a circular body and a pivot arm 242, 244 extending from a lower portion of the circular body. In the assembled and locked position of the pivot joint assembly 230 in Fig. 5A, the first and the second pivot arms 242, 244 of the pivot joint assembly 230 may be coaxial. The circular body of the pivot housings 268, 270 may be configured to rotationally join to one another along facing sidewalls to enable relative rotation of the circular bodies.

[0113] The first pivot housing 268 may be configured with a body having a circular, rounded outer wall, an actuator recess 276 formed at an exterior of the first pivot housing 268 for receiving an actuator 278, an actuator opening 280 formed in the actuator recess 276 and extending into the interior of the first pivot housing 268 for receiving actuator legs of the actuator 278, a wall within an interior of the first pivot housing 268 for receiving the actuator gear 282, and in some cases, the keyed portions 298 of the actuator gear 282 in the locked position of the pivot joint assembly 230 (e.g., an actuator gear recess 292 with one or more keyed recesses 294, 296), and a tab-receiving recess formed in the interior of the first pivot housing 268 for receiving the cable pivot covering tabs 284. The first pivot arm 242 may extend from the body of the first pivot housing 268 and may be configured to be joined to the first pivot member 232, such as through a boss and fastener connection.

[0114] The second pivot housing 270 may include a circular, planar outer wall with a second pivot housing extension 286 extending from the outer wall for abutting with the first pivot arm 242 in the assembled and locked position of Fig. 5A. The second pivot arm 244 may extend from an opposite side of the planar outer wall from where the pivot housing extension 286 is located and may be configured to be joined with the second pivot member 264 such as through a boss and fastener connection. A first side 288 of the second pivot housing 270 may be configured to receive the cable pivot covering 246 and may include circular sidewalls for receiving the cable pivot covering 246. A second side 290 of the second pivot housing 270 may include an actuator gear recess 292 with first and second keyed recess 294, 296 for receiving the actuator gear 282 and the keyed extensions 298 of the actuator gear 282 in the locked and unlocked position of the pivot joint assembly 230. A second pivot arm boss 302 may extend between the sides of the second pivot housing 270 at a central region and may be configured with a shape for receiving the cable pivot covering axle 304, e.g., a cylindrical shape. The outer wall forming the second pivot arm boss 302 may be configured with a cylindrical shape for receiving the actuator gear 282 at

the actuator gear opening 300.

[0115] The cable pivot covering 246 may be configured as a covering for the first side 288 of the second pivot housing 270 and the cable 238 of the pivot joint assembly 230. The cable pivot covering 246 may include an outer wall with a similar shape to the shape of the first side 288 of the second pivot housing 270, such as a circular shaped outer wall. The cable pivot covering 246 may include an internal wall configured to rotatably join to the first side 288 of the second pivot housing 270, such as through circular a tongue and groove arrangement that enables the cable pivot covering 246 to join to and rotate relative to the second pivot housing 270. A cable pivot covering axle 304 may extend from an interior of the cable pivot covering 246 and may form a cable pivot covering boss 306 for receiving the pivot fastener 248. Cable pivot covering tabs 284 may be formed at the terminal end of the cable pivot covering axle 304, and the cable pivot covering axle 304 may be received by and extend through the second pivot housing 270 and may join to the first pivot housing 268 by the cable pivot covering tabs 284 engaging with to the tab-receiving recesses formed in the first pivot housing 268 for enabling the cable pivot covering boss 306 and the first pivot housing 268 to simultaneously rotate (e.g., rotate in unison) during operation of the pivot joint assembly 230. The cable pivot covering boss may receive a pivot fastener, described below.

[0116] The pivot fastener 248 may join the housing portions 246, 268, 270 of the pivot joint assembly 230. For example, the pivot fastener 248 may include an enlarged distal end 308 that may abut an external wall of the cable pivot covering 246, and the body 310 of the pivot fastener 248 may extend through the cable pivot covering axle 304 via the cable pivot covering boss 306, through a second pivot housing boss 302 and through a first pivot housing pivot boss. A proximal end of the boss 306 may join to the first pivot housing 268 by a boss and fastener used to join the proximal end of the boss 306 to an internal wall of the first pivot housing 268, such as an internal wall forming the bottom portion of the actuator recess 276. A washer 312 may be positioned between the proximal end of the pivot fastener 248 and internal wall of the first pivot housing 268 and the fastener 248 may extend through the washer 312 and may facilitate securing the proximal end of the pivot fastener 248 to the internal wall of the first pivot housing 268.

[0117] The second pivot member 234 may be configured as a generally elongated hollow tubular structure and may include a circular or oval-shaped cross section with an external circumference that is slightly smaller than an internal circumference of the second pivot arm 244. A second end of the second pivot member 234 may join to a base of the detachable transport system 102 (see Fig. 4).

[0118] Fig. 5C illustrates another exploded view of the pivot joint assembly 230 of the telescopic foldable towing handle 186. The pivot joint assembly 230 may include

an actuator 278 such as a push button for enabling the pivot housings 268, 270 of the pivot joint assembly 230 to pivot relative to one another. The actuator 278 may include actuator arms 314 extending towards the actuator recess 276 of the first pivot housing 268, and actuator arm flanges 316 may be formed at the terminal ends of the actuator arms 314. The actuator arms 314 may enable the externally arranged actuator 278 to operatively couple with the actuator gear 282 arranged within the pivot joint assembly 230. The actuator arm flanges 316 may serve as hooks or fasteners to enable the actuator legs to remain in an interior of the pivot joint assembly 230 when the actuator 278 is urged outwardly by the biasing member 318 in the assembled state. The actuator 278 positioned within the actuator recess 276 of the first pivot housing 268 may operatively couple to the biasing member 318 by way of the actuator arms 314, actuator arm flanges 316 and the second wall 322 of the actuator gear 282.

[0119] The actuator gear 282 may be positioned between the pivot housings 268, 270 for selectively preventing and allowing the pivot housings 268, 270 to rotate relative to one another. The actuator gear 282 may be configured with keyed extensions 298 along the outer periphery and an actuator gear opening 300 may be formed as a cylindrical opening in the central portion of the actuator gear 282. A first wall 320 of the actuator gear 282 may contact the biasing member 318 and the second wall 322 of the actuator gear 282 may contact the actuator arms 314 and actuator arm flanges 316 of the actuator 278 as well as the wall within the interior of the first pivot housing 268. The actuator gear 282 may operatively couple to one or both of the first or second pivot housing 268, 270 for locking and unlocking the pivot joint assembly 230, described below. Although two key portions 298 are shown on the actuator gear 282, only one key portion 298 may be needed to selectively prevent and allow rotation of the pivot housings 268, 270.

[0120] In the assembled state of the pivot joint assembly 230, the biasing member 318, which may be a coil spring or the like, may be arranged within a second actuator gear recess 292 of the second pivot housing 270 between a wall of the actuator gear recess 292 and a first wall 320 of the actuator gear 282. The biasing member 318 may be configured with an internal diameter that enables the outer wall of the second pivot arm boss 302 to extend through the biasing member 318. The second wall 322 of the actuator gear 282 may contact actuator arms 314 formed on the actuator 278 that may extend through the actuator opening 280 defined through a wall of the actuator recess 276. The actuator arms 314 may provide the actuator 278 with access to an interior of the assembled pivot joint assembly 230 so that the actuator 278 is biased outwardly by the biasing member 318.

[0121] In operation of the pivot joint assembly 230 of the telescopic foldable towing handle 186, the components of the telescopic foldable towing handle 186 may be in an initial state as shown in Figs. 5A and 5E, in which

the telescopic members 236 may be extended. The initial state may correspond to the cable 238 being arranged in a non-rotated or relaxed position as shown in Fig. 5D. In this position, the telescopic member 236 and handle 240 may extend from the detachable transport system 102 by a distance that enables the handle 240 to be utilized to tow a luggage piece joined thereto. In addition, in the initial state, the biasing member 318 may be in an extended, semi-compressed state for urging the actuator 278 to the initial position shown in Figs. 5A and 5E. This position may correspond to the keyed portions 298 of the actuator gear 282 being concurrently positioned within the keyed recesses 294, 296 formed in the second pivot housing 270 and against one or more walls formed in the first pivot housing 268. In this position, the outer wall 326 of the actuator gear 282 may abut portions of the interior of the first and second pivot housings 268, 270 to cause the pivot housings 268, 270 to be locked.

[0122] From the initial state in which the keyed extensions 298 on the actuator gear 282 may be concurrently received within the corresponding portions of the first and second pivot housings 268, 270 (e.g., the wall of the first pivot housing 268 and the keyed recesses 294, 296 of the second pivot housing 270), which prevent the pivot housings 268, 270 from being rotated relative to each other, to allow rotation, the actuator gear 282 is moved towards the cable pivot covering 246, which moves the keyed extension 298 of the actuator gear 282 out of abutment with a wall of the first pivot housing 268 and towards or further into the keyed recesses 294, 296 defined by the second pivot housing 270. This then allows the first pivot housing 268 to be rotated relative to the second pivot housing 270.

[0123] Thus, from the initial state, the actuator 278 may be actuated such as by pressing the actuator 278 towards the cable pivot covering 246. The actuator 278 may slave the actuator arms 314 in movement so that the actuator arms 314 press the actuator gear 282 against the force of the biasing member 318 away from the first pivot housing 268 and into the second actuator gear recess 292 and the keyed recesses 294, 296 of the second pivot housing 270. While the actuator gear 282 is arranged within the second pivot housing 270, the pivot housings 268, 270 may be rotated relative to one another. For example, a force exerted against one of the pivot members 232, 234 may cause the first and second pivot housing 268, 270 of the pivot joint assembly 230 to pivot relative to one another as illustrated in Fig. 5F. However, as shown in Figs. 5A and 5C, the second pivot housing extension 286 may prevent rotation of the pivot housings 268, 270 in one direction. For example, the first pivot housing 268 may be prevented from rotating in the counterclockwise direction by abutting with the second pivot housing extension 286.

[0124] Returning to Fig. 5F, as the pivot housings 268, 270 move relative to one another, the actuator gear 282 may be arranged within the actuator recess 276. This position of the actuator gear 282 may correspond to an

unlocked position of the pivot joint assembly 230. In this position, the actuator gear 282 and biasing member 318 may be blocked from moving into the interior chamber. During relative rotation, the first pivot housing 268 slaves the pivot cable covering 246, for example due to the engagement between the cable pivot covering tabs 284 and the tab-receiving recesses of the first pivot housing 268, due to the engagement between the pivot fastener 248 and the first pivot housing 268 or both.

[0125] As the pivot housings 268, 270 rotate or pivot relative to one another in the unlocked position of the pivot joint assembly 230, the cable 238 joined between the telescopic member 236 and the pivot joint assembly 230 may be wrapped around a pivot barrel 324 within the interior chamber defined between the cable pivot covering 246 and the second pivot housing 270. The cable 238 may be configured with a substantially fixed length, and as a result of the wrapping action of the cable 238 around the pivot barrel 324, the cable 238 may pull the telescopic member 236 joined thereto into the first pivot member 232. Due to the pivot operation of the pivot joint assembly 230 and the retracting operation of the cable 238 and telescopic member 236, the handle 240 may be received within a handle housing 128 of the detachable transport system 102 during the rotation of the first pivot housing 268 relative to the second pivot housing 270 from the position shown in Fig. 5A to the position shown in Fig. 5G. For example, the telescopic member 236 and the handle 140 may be positioned in the fully retracted position of Fig. 5G when the telescopic foldable towing handle 186 is arranged within the detachable transport system 102 shown in Fig. 3D.

[0126] According to some implementations, the pivot joint assembly 230 may be rotated or pivoted from the pivoted state, e.g., the positions shown in Figs. 5F and 5G, back to the initial state, e.g., the position shown in Figs. 5A and 5E. In this operation, rotating the pivot housing portions 268, 270 to the position of Fig. 5A may cause the actuator gear 282 arranged within the second actuator gear recess 292 to be pressed by the biasing member 318 into the interior chamber of the pivot housing 268 so that the actuator gear 282 is concurrently received in the first and second actuator gear recesses 276, 292, which may correspond to the locked position of the actuator gear 282. In some implementations, moving the pivot joint assembly 230 from the pivoted state to the initial state may cause the cable 238 to urge the telescopic member 236 to the extended position of the telescopic member 236 shown in Figs. 5A and 5E. Alternatively, moving the pivot joint assembly 230 to the initial state may relax the cable 238, and the telescopic member 236 may be manually pulled or extracted from the interior of the first pivot member 232, such as by pulling the handle 240 away from the first pivot member 232 until the cable 238 reaches the position shown in Fig. 5D.

[0127] Within the detachable transport system 102, the pivot joint assembly 230 may be arranged in an area corresponding to a middle region 116 of the soft sided

enclosure 224 of the detachable transport system 102, and the first and second pivot members 232, 234 may be arranged respectively in upper and lower regions 112, 114 of the soft sided enclosure 224. The pivot joint assembly 230 may be activated by pressing the actuator 278, either by accessing the compartment interior 208 of the soft sided enclosure 224 using the closure pull 210 and pressing the actuator 278 or by pressing the material forming the front or back panel 108, 110 and the underlying actuator 278. That is, because the soft sided enclosure 224 may be constructed of pliable materials, the actuator 278 may be pressed by way of deforming the fabric and applying pressure to the underlying actuator 278. By pivoting the telescopic foldable towing handle 186 at the pivot joint assembly 230, the detachable transport system 102 may be collapsed at the middle portion 116 as shown and described in connection with Figs. 3B-3D. This may allow the detachable transport system 102 to be easily transported, e.g., carried, or stowed within a luggage piece 104. While a single pivot joint assembly 230 is illustrated in connection with the telescopic foldable towing handle 186 Figures 5A-5G, multiple pivot joint assemblies may be provided with the telescopic foldable towing handle 186 in order to provide multiple regions of folding and telescoping action. In some implementations, one or more pivot joint assemblies 230 configured for folding but not telescoping may be provided along with a telescopic foldable towing handle 186.

[0128] Turning to Fig. 6, another implementation of the detachable transport system 340 may include a first and a second soft sided enclosure 342, 344 with first and second releasable attachment members 346, 348, respectively, that may releasably join to a luggage piece with corresponding releasable attachment members. The first soft sided enclosure 342 may be similar to the upper region 112 of the detachable transport system 102 described above in connection with Figs. 1A-2F and may receive the handle 358 in the handle housing when the handle 358 is in the retracted position. The second soft sided enclosure 344 may be similar to the lower region 114 of the detachable transport system 102 of Figs. 1A-2F and may carry one or more wheels 360, wheel housings 362 and stabilizing flanges 364. A foldable towing handle 354 may be arranged within and may extend between the first and second soft sided enclosures 342, 344. A pivot joint assembly 356 of the foldable towing handle 354 may be used to fold the detachable transport system 340 at the pivot joint assembly 356 and may be arranged between the soft sided enclosures 342, 344. The detachable transport system 340 of Fig. 6 may include the flexible strap 202 shown in Figs. 3A-3D for joining the upper and lower regions 350, 352 when the pivot joint assembly 356 is in the folded state. In some implementations, the foldable towing handle 354 of Fig. 6 may be the telescopic foldable towing handle 186 shown in Figs. 5A-5G.

[0129] Turning to Fig. 7, in some implementations, the luggage piece 104 shown in Fig. 1A may be used in combination with a detachable cover 400 having a similar

configuration to the contoured or hourglass shaped soft sided compartment of the detachable transport system 102 but the detachable cover 400 may be constructed without wheels 130, wheel housings 132, stabilizing flanges 134 and a handle 126. In some implementations, both the detachable cover 400 and the detachable transport system 102 may be provided with a luggage piece 104 in the luggage transport system. When the detachable transport system 102 is not in use, the detachable cover 400 may be releasably joined to the luggage piece 104 and vice versa. The detachable cover 400 may be constructed of durable materials such as durable fabrics (e.g., nylon) or durable coatings (e.g., polymer coatings) and may serve as a protection layer when joined to the luggage piece 104.

[0130] Turning to Figs. 8A and 8B, illustrated are snap closures 170 (Fig. 8A) and hook and loop closures 172 (Fig. 8B) that may serve as releasable attachment members 136, 138. The snap 170 and hook and loop closures 172 may be used as an alternative to or in addition to the zipper assemblies illustrated in connection with the detachable transport systems 102 and luggage pieces 104. In addition, the releasable attachment members 170, 172 may be used to join opposing panels 148, 150, 152, 154 of the luggage piece 104 such as at the central region of the luggage piece 104.

[0131] With reference to Figs. 9A and 9B, one example of an alternative example of a closure panel 402 will now be described. With reference to Fig. 9A, each of four zipper closure mechanisms that collectively secure the luggage piece may include a zipper track or tape, a zipper slider 406, and a zipper pull tab 408. The zipper sliders 406 may each include one or more hasps or apertures 410 through which, as described below, a lock or cable 412 may be inserted to hinder movement of the zipper pull tabs 408. In other examples, the zipper pull tabs 408 may each have one or more hasps or apertures for a similar purpose. In general, any one or more of the zipper sliders 406 or zipper pull tabs 408 may include one or more hasps or apertures. In other embodiments, however, none of the zipper sliders 406 and/or none of the zipper pull tabs 408 may include hasps or apertures operable to receive a lock or a cable 412.

[0132] Even though the zipper sliders 406 or pull tabs 408 may include hasps or apertures 410 to receive a lock or a cable 412, it may not always be necessary or advisable to secure access to the interior of the luggage piece with a lock 412 or similar mechanism. For example, if the luggage case will not be subject to or handled by untrustworthy persons, it may be inconvenient to secure the zipper closure mechanisms with a lock 412 or other mechanism. In these circumstances, however, it is generally still advantageous for the luggage case to remain in a generally closed configuration during transport and/or handling so that the inner compartment is not exposed by the zipper closure mechanisms unintentionally unzipping. Therefore, it may be desirable for the closure panel to provide some non-locking securing functionality

- e.g., a functionality that assists in maintaining the zipper closure mechanisms in a closed position, but that can be overcome without the need to unlock a mechanism by entering a combination, using a key, or the like. To this end, a securing mechanism 414 may be provided on the upper and lower panels 416, 418 in some but not all examples.

[0133] With reference to Fig. 9B, one half of the securing mechanism 414 may be coupled to the narrow terminal end of the upper panel 416, and the other half of the securing mechanism 414 may be coupled to the narrow terminal end of the lower panel 418. The securing mechanism 414 selectively couples the respective terminal ends together such that if the zipper closure mechanisms come partially or fully unzipped, the terminal ends of the upper and lower panels 416, 418 are held in a closed configuration. In some examples, either one type of securing mechanism 414 may be used, or a combination of two or more types of securing mechanisms 414 may be used. For instance, and as described herein, hook-and-loop fastener structure 420, 422 may be used, independently or in conjunction with a snap structure 424, 426.

[0134] With reference to Fig. 9B, material with hooks 420 (one-half of a hook-and-loop closure mechanism) and also the receiving portion 424 of a snap are coupled to a tab extending from the narrowing terminus of the upper panel 416, and are configured to face outwardly of the internal compartment. These features are, together or separately, one portion of the securing mechanism 414. Material with loops 422 (the other half of a hook-and-loop closure mechanism) and the protruding portion 426 of the snap are coupled to the underside of the terminal end of the lower panel 418 to form the other portion of the securing mechanism 414. This other portion faces toward the inner compartment, and thus also towards the first portion of the securing mechanism 414. With reference to Fig. 9A, the two portions or halves of the securing mechanism 414 may be joined by coupling the receiving and protruding portions 424, 426 of the snap and the coupling the hooks 420 and loops 422, such that the panels 416, 418 are hindered from accidentally moving away from each other and exposing the compartment.

[0135] With reference to Fig. 9B, the two halves of the securing mechanism 414 may be separable from one another by pulling the two portions apart from each other to disengage the hook-and-loop material 420, 422, as well as the snap structure 424, 426, allowing the upper and lower panels 416, 418 to fully open when the respective zipper closure mechanisms are unzipped. Advantageously, the two halves or portions of the securing mechanism 414 in some examples, as illustrated in Fig. 9B, may be entirely concealed by the upper and lower panels 416, 418 when the two halves are joined together.

[0136] With reference now to Fig. 10, and referring back to Fig. 9A, a lock 412 may be used in connection with the four zipper securing mechanisms. The lock 412 may take many forms, and as illustrated in Fig. 10, may

take the form of cable 428 coupled to a semi-circle base portion 430. The cable 428 may include two end portions, and one end may or may not be permanently coupled to the base portion 430. The diameter of the cable 428 and end stops may generally be less than the diameter of any hasps or apertures 410 in the zipper sliders 406 or zipper pull tabs 408 - for example, the cable diameter may be approximately 50% the diameter of the hasps or apertures 410 in some examples. One end of the cable 428 may be selectively released and secured from the base portion 430, as explained below.

[0137] The base portion 430 of the lock 412 may include a locking mechanism such as a combination dial system, and may selectively release and secure one or both ends of the cable 428. Additionally or alternatively, the base portion 430 may include a tumbler lock configured to receive a key. In some examples, two or more locking mechanisms may be provided to, for example, allow security screening agencies to selectively disable the lock and gain access to the enclosed volume of the luggage piece.

[0138] With reference to Figs. 11A through 11E, the detachable transport system may include a support member 440, 440' operable to help support the luggage to stand on one end in an upright position. The support member 440 may include two bosses 442, 442' coupled to or through the bottom surface 444, 444' of the duffle case. Each boss 442, 442' defines a recess 446, 446' therein that retractably receives an end of an extension bar 448, 448'. Each boss 442, 442' may be coupled to or through the bottom surface 444, 444' by one or more fasteners 450, and may be coupled to an inner frame (e.g., the telescoping handle system, the bottom panel 456, the bottom frame 458, or the like) of the detachable transport system for stability. The bosses 442, 442' may generally be positioned between but adjacent to the wheel housings 452, 452' to provide a relatively wide support base for the luggage. The bosses 442 may be positioned approximately in the middle of the bottom panel of the duffle case, such as shown in Figs. 11A and 11B. The bosses 442' may be positioned near a front edge of the duffle case, such as shown in Figs. 11C and 11D. The extension bar 448, 448' is generally U-shaped, with a support portion extending between two free legs. Each leg defines an end movably received in the recess 446, 446' in a respective boss 442, 442'. The extension bar 448, 448' may be metal, plastic, or another suitable material. Two cylindrical sleeves may be positioned along the length of the support portion and between the intersection of the support portion and the two legs. The sleeves engage the support surface (e.g. floor) when the luggage case is stood on end and upright. When standing on its end, the duffle rests on its two wheels and the extension bar 448, 448' and possibly also the bosses 442, 442', for stability. While the extension bar may be U-shaped in some examples, as illustrated in Figs. 11A through 11D, but may be semi-circular, rectilinear, or have dual curves, or take on a variety of shapes.

[0139] In some examples, and with reference to Figs. 11B and 11E, the extension bar 448, 448' may be retractable into and extendible from the recesses 446, 446' defined in the bosses 442, 442'. In this manner, the support system 440, 440' may assist in selectively expanding or enlarging the footprint of the luggage case, preferably when the luggage case is to be stood on end, to better distribute the weight of the luggage case when the luggage case is in a vertical position. In this extended orientation, the extension bar 448, 448' may be fully extended (Fig. 11A, 11C), partially extended, or fully retracted (Fig. 11B, 11D). The extension bar 448, 448' may extend beyond the front edge of the duffel in order to provide improved support against tipping. The amount the support portion of the extension bar 448, 448' is positioned beyond the front edge of the duffel case may be from none, to approximately 50% of the length of the legs, to possibly more.

[0140] As noted above, and in reference to Fig. 11E, the extension bar 448, 448' may be retracted into the bosses 442, 442' to reduce the amount of extension when, for example, the luggage case is placed on its side. In those examples where the extension bar 448, 448' is extendible/retractable, it may lock or be held in either or both of its extended and retracted positions by a détente structure 454 formed between the leg and the recess 446, 446'. Other types of retention structure may also be used, such as, locking pins, latches, and so forth. The extension bar 448, 448' may selectively lock or be held in the retracted position so as to not interfere with luggage handling or storage, and may selectively lock into the extended position so as to not move to the collapsed position when the duffel is positioned vertically. One example of a détente structure 454 includes an annular groove formed around the interior surface of the recess 446, 446', which receives a resilient protrusion (e.g. a spring) extending from the outer side wall of the leg inserted into the recess 446, 446'. When the protrusion reaches the groove, the protrusion resiliently extends into the groove and helps position the extension bar 448, 448' in that position. The engagement may be overcome by manual force to cause the protrusion to collapse back to the surface of the leg and allow the leg to move within the recess 446, 446'.

[0141] Turning to Fig. 12, in some examples, such as those with a relatively small luggage piece, the support member 460 may not include bosses or an extension bar, but may instead be a single plastic foot positioned along the width of the bottom surface 462, such as being centered from side to side as shown.

[0142] With reference now to Fig. 13, in some examples, such as those with a relatively large luggage piece, the luggage piece may not be detachable from the rest of the transport system. In these embodiments, there may be no releasable attachment member (e.g., a zipper) 464 that couples the luggage piece to the transport system.

[0143] The structures and functions of the detachable

transport system implementations may be used interchangeably to form alternative implementations, as would be appreciated by those skilled in the art.

[0144] While the detachable transport systems are described as used with a luggage piece configured as a soft sided duffel bag, the detachable transport systems could be used with any type of luggage or with backpacks or other bags. The luggage pieces may have hard or soft sides and may be formed from any type of material or construction used to form luggage pieces, including, but not limited to, fabrics (e.g., nylon), plastics (e.g., acrylonitrile butadiene styrene ("ABS"), polycarbonate, polypropylene, polyethylene, etc.), natural materials (e.g., plywood), metals, or some combination thereof. The luggage pieces may further include structures, such as lining or internal panels, positioned within the main enclosed space that divide it into two or more compartments. The luggage pieces may also include any of the following: one or more carry handles to lift or otherwise move the luggage piece, edge piping to help protect the outer surface of the luggage piece from scuffs and abrasions, and at least one perimeter zipper to access the main enclosed space and any pockets or secondary or supplemental enclosed spaces.

[0145] All directional references (e.g., upper, lower, upward, downward, left, right, leftward, rightward, top, bottom, above, below, vertical, horizontal, clockwise, and counterclockwise) are only used for identification purposes to aid the reader's understanding of the implementations of the present invention, and do not create limitations, particularly as to the position, orientation, or use of the invention 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.

[0146] 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 present invention is not limited to components which 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 without departing from the spirit of the invention as defined in the appended claims.

Claims

1. A luggage assembly comprising:

a luggage item (104) including a releasable attachment member (138) provided on the luggage item (104); and
a transport device (102) for the luggage item (104) comprising:

a body (106);
a retractable handle (184) joined to the body (106);
one or more wheels (130) joined to the body (106); and

characterized by a releasable attachment member (136) complementary to the releasable attachment member (138) provided on the luggage item (104), the releasable attachment member (136) of the transport device (102) being positioned along a substantial portion of a periphery of the body (106) and configured to releasably engage the releasable attachment member (138) provided on the luggage item (104) in order to selectively join the luggage item (104) to the transport device (102).

2. The luggage assembly according to claim 1, wherein the body (106) is relatively flexible.

3. The luggage assembly according to any of claims 1 and 2, wherein:

the releasable attachment member (136) of the transport device (102) comprises a single continuous member positioned along the substantial portion of the periphery of the body (106); and
the single continuous member preferably comprises at least one of a zipper mechanism (136, 138) or a hook-and-loop closure mechanism (172).

4. The luggage assembly according to any of claims 1 - 3, wherein the substantial portion of the periphery of the body (106) comprises at least 50% of the periphery of the body (106), preferably no less than 75%, more preferably no less than 90%, even more preferably an entirety of the periphery of the body (106).

5. The luggage assembly according to any of claims 1 - 4, wherein:

the body (106) comprises an upper region (112), a middle region (116), and a lower region (114);
the upper region (112) is configured to extend away from the middle region (116) at a first angle measured from a front surface of the middle region (116) to a front surface of the upper region (112);

the lower region (114) is configured to extend away from the middle region (116) at a second angle measured from the front surface of the middle region (116) to a front surface of the lower region (114);

the retractable handle (184) is joined to the upper region (112);

the one or more wheels (130) is joined to the lower region (114); and

the upper region (112), the middle region (116) and the lower region (114) preferably comprise a C-shape structure.

6. The luggage assembly according to claim 5, wherein at least one of the first angle or the second angle is between approximately 40 to approximately 140 degrees.

7. The luggage assembly according to any of claims 5 and 6, wherein:

the upper region (112) is configured to overlap a portion of a top side (142) of the luggage item (104); and

the portion of the top side (142) overlapped comprises no less than 20%, preferably no less than 50%, more preferably no less than 80% of a surface area of the top side (142) of the luggage item (104).

8. The luggage assembly according to any of claims 5 - 7, wherein:

the lower region (114) is configured to overlap a portion of a bottom side (146) of the luggage item (104); and

the portion of the bottom side (146) overlapped comprises no less than 20%, preferably no less than 50%, more preferably no less than 80% of a surface area of the bottom side (146) of the luggage item (104).

9. The luggage assembly according to any of claims 5 - 8, wherein at least one of the upper region (112) or the lower region (114) is configured to be coextensive with a top side (142) or a bottom side (146), respectively, of the luggage item (104) along a depth dimension of the top side (142) or the bottom side (146).

10. The luggage assembly according to any of claims 1

- 9, wherein a central portion of the body (106) is narrower than at least one of upper and lower end portions of the body (106)..

11. The luggage assembly according to any of claims 1 - 10, wherein at least a portion of the periphery of the body (106) comprises a curvilinear shape, and preferably at least a portion of the body (106) comprises an hourglass shape.

12. The luggage assembly according to any of claims 1 - 11, wherein:

the body (106) further comprises a front panel (108) and a rear panel (110) defining an internal compartment (208) of the body (106);
a portion of the retractable handle (184) is received within the internal compartment (208) of the body (106); and
a closure mechanism (124) is joined to the front panel (108) for selectively exposing the internal compartment (208) of the body (106).

13. The luggage assembly according to any of claims 1 - 12, wherein:

the luggage item (104) comprises one or more materials defining an internal compartment of the luggage item (104) selectively accessed through an X-shaped opening defined by selective movement of first and second portions (148, 154) of the one or more materials relative to other portions of the one or more materials where the first and second portions (148, 154) terminate proximate to a center of the X-shape.

14. A luggage item (104), comprising:

one or more materials defining an internal compartment of the luggage item (104) selectively accessed through an X-shaped opening defined by selective movement of first and second portions (416, 418) of the one or more materials relative to other portions of the one or more materials where the first and second portions (416, 418) terminate proximate to a center of the X-shape;
a plurality of closure mechanisms (162, 164, 166, 168) operatively joined to the one or more materials to selectively couple and uncouple the first and second portions (416, 418) of the one or more materials to the other portions of the one or more materials in order to selectively close and open the X-shaped opening; and
characterized by a securing mechanism (414) that releasably secures the first and second portions (416, 418) of the one or more materials to each other regardless of whether or not the other

portions of the one or more materials are coupled to or uncoupled from the first and second portions (416, 418) of the one or more materials.

15. The luggage item according to claim 14, wherein the securing mechanism (414) comprises at least one of a hook-and-loop closure mechanism (420, 422) or a snap closure mechanism (424, 426).

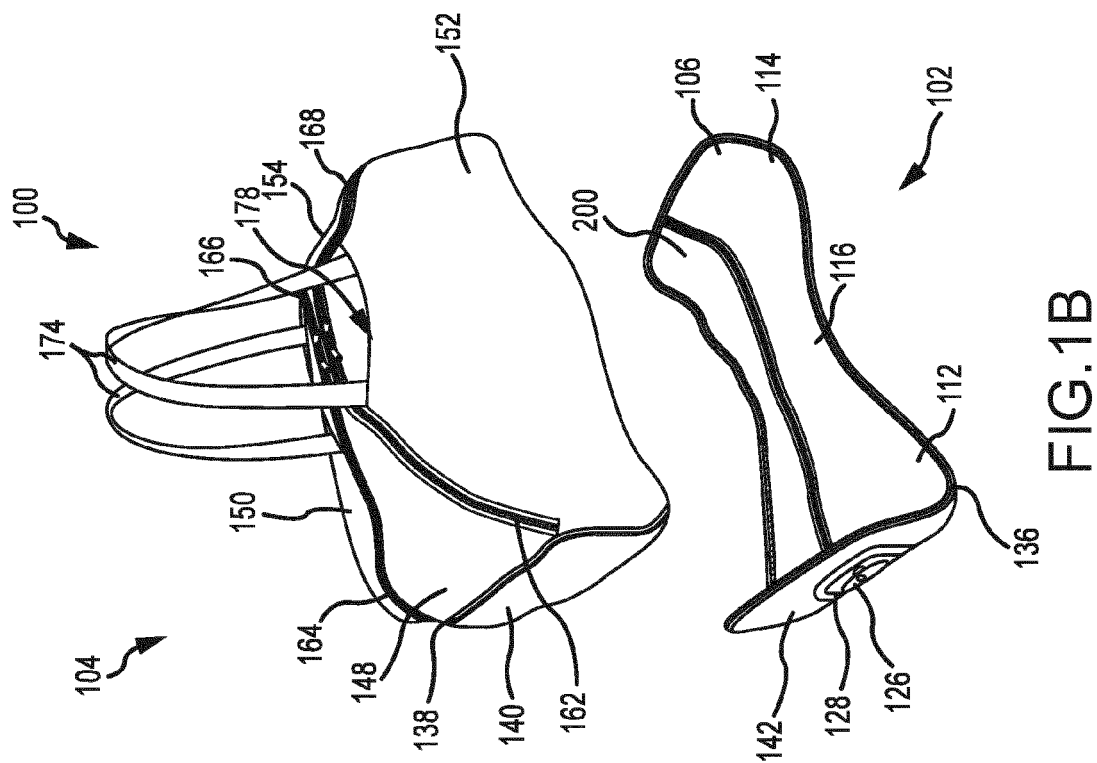


FIG. 1B

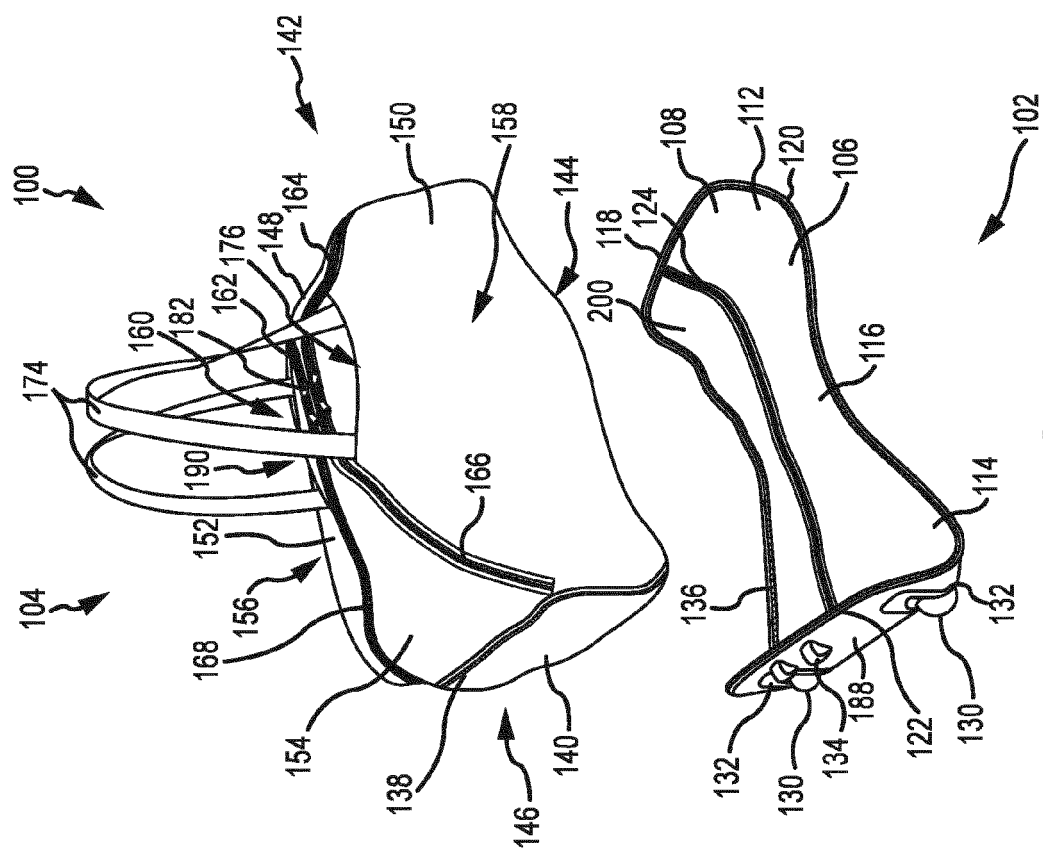


FIG. 1A

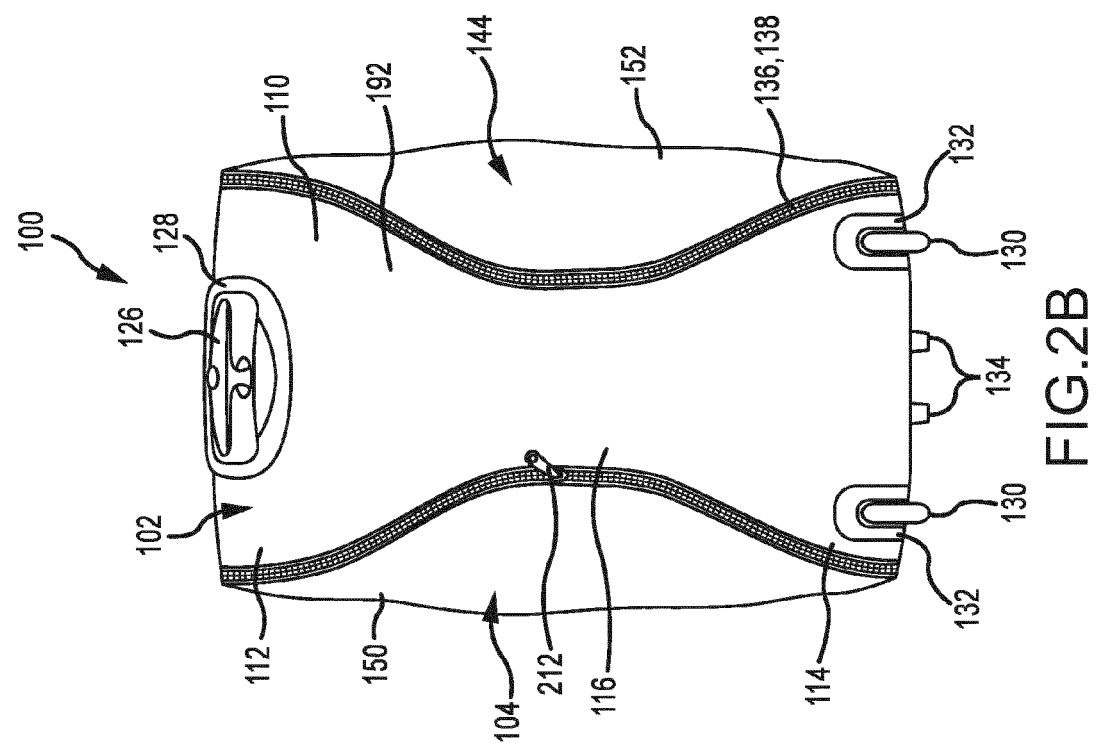


FIG. 2B

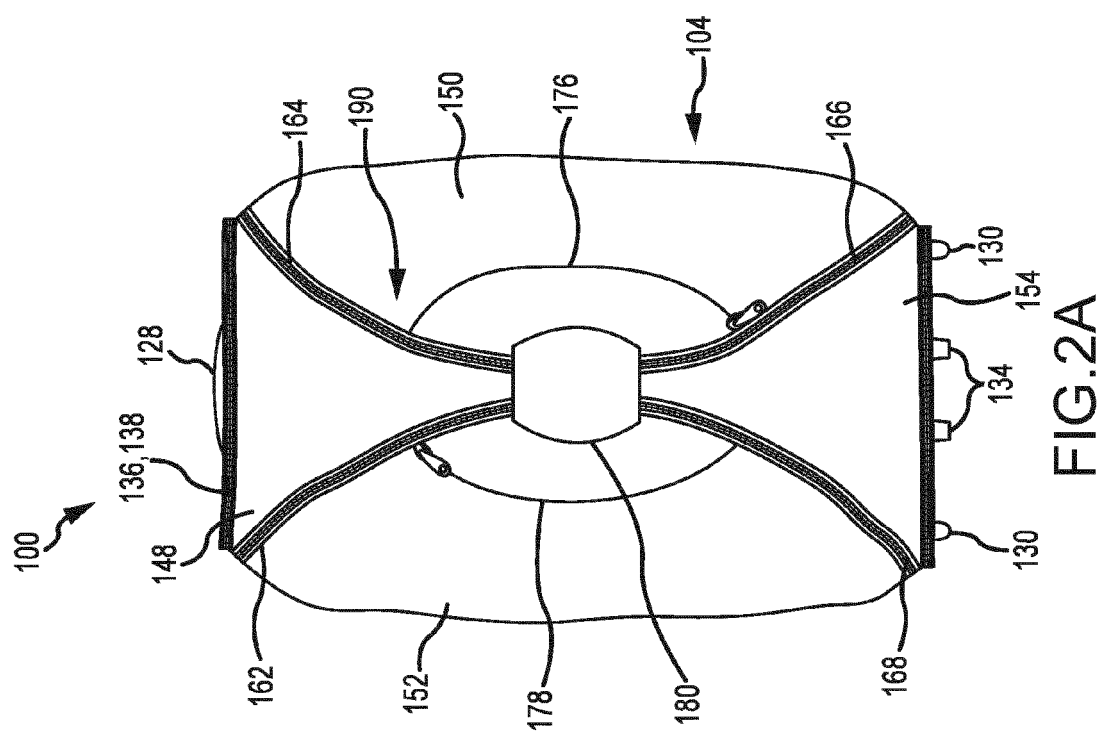
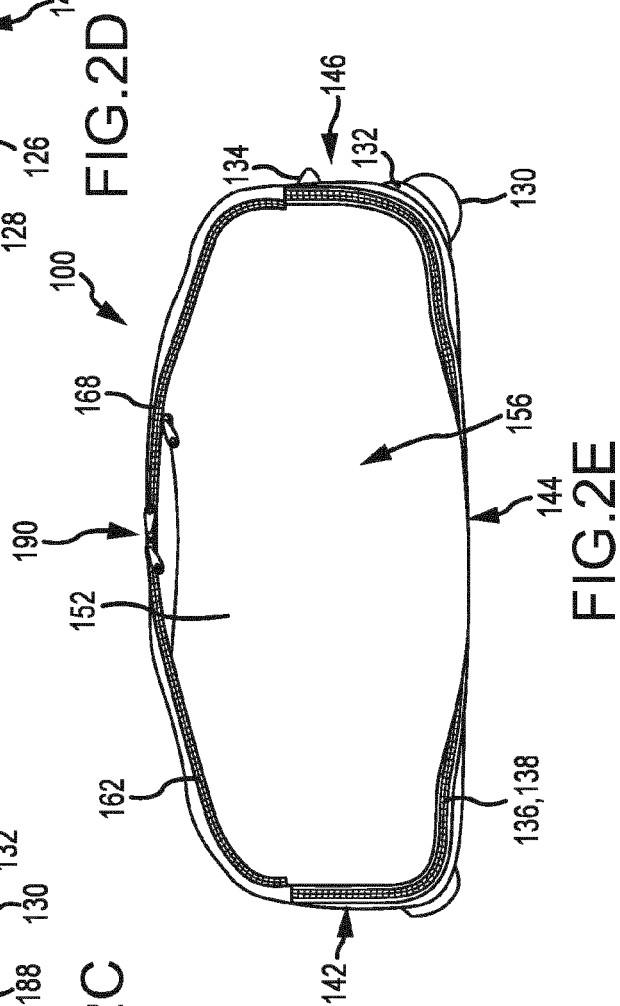
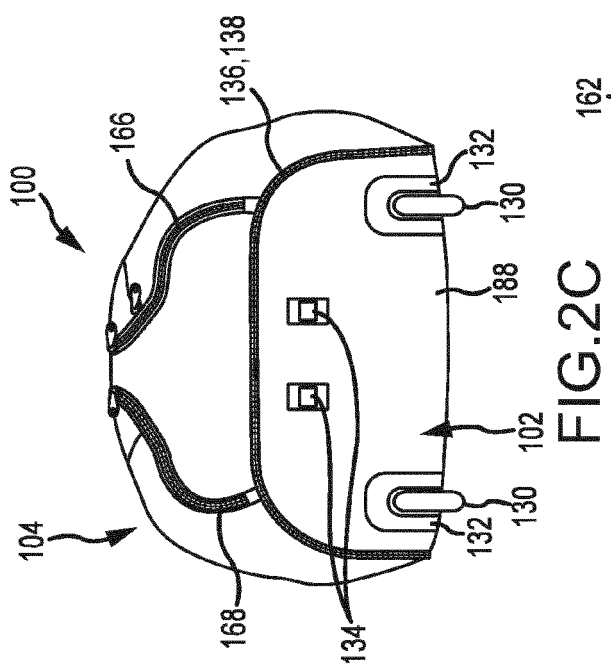
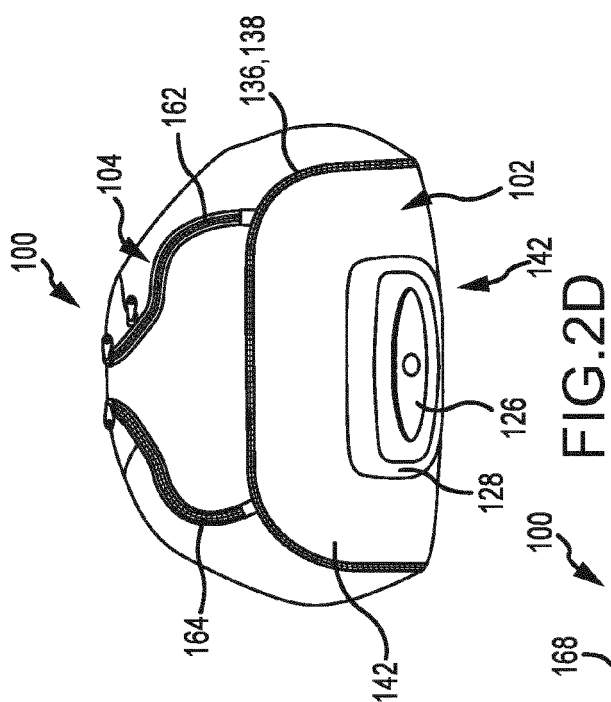
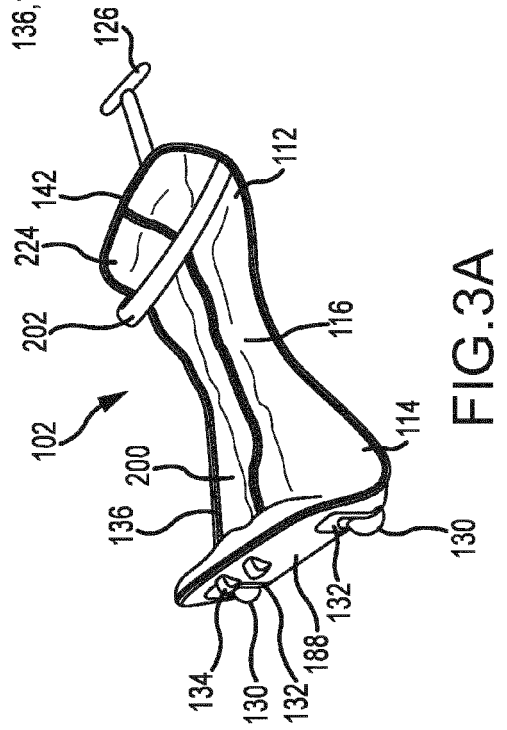
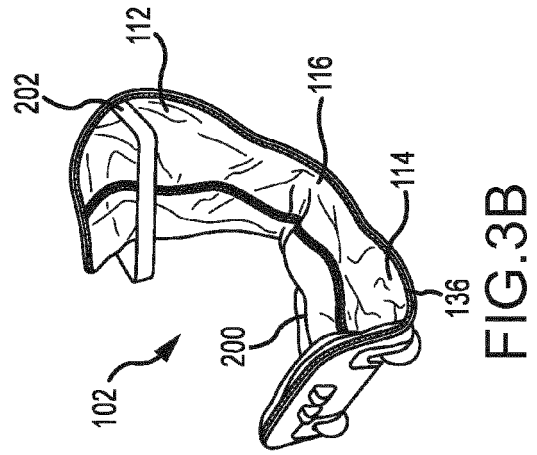
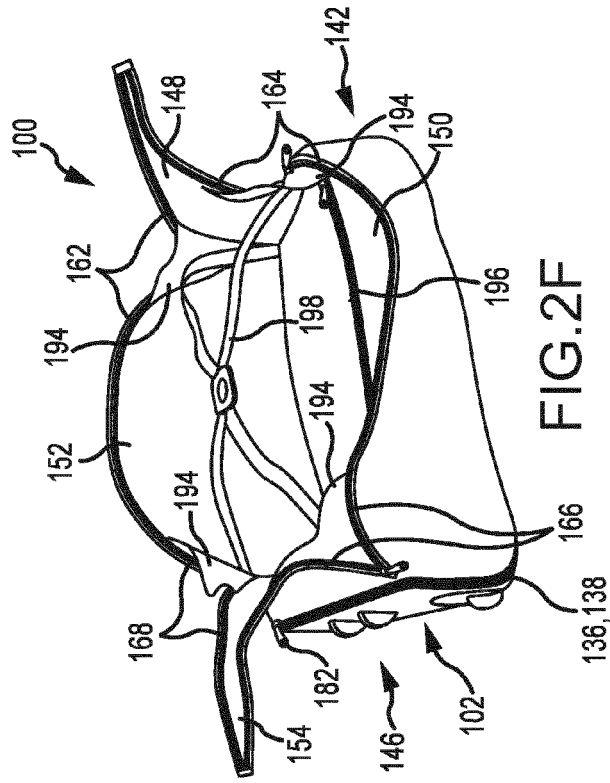
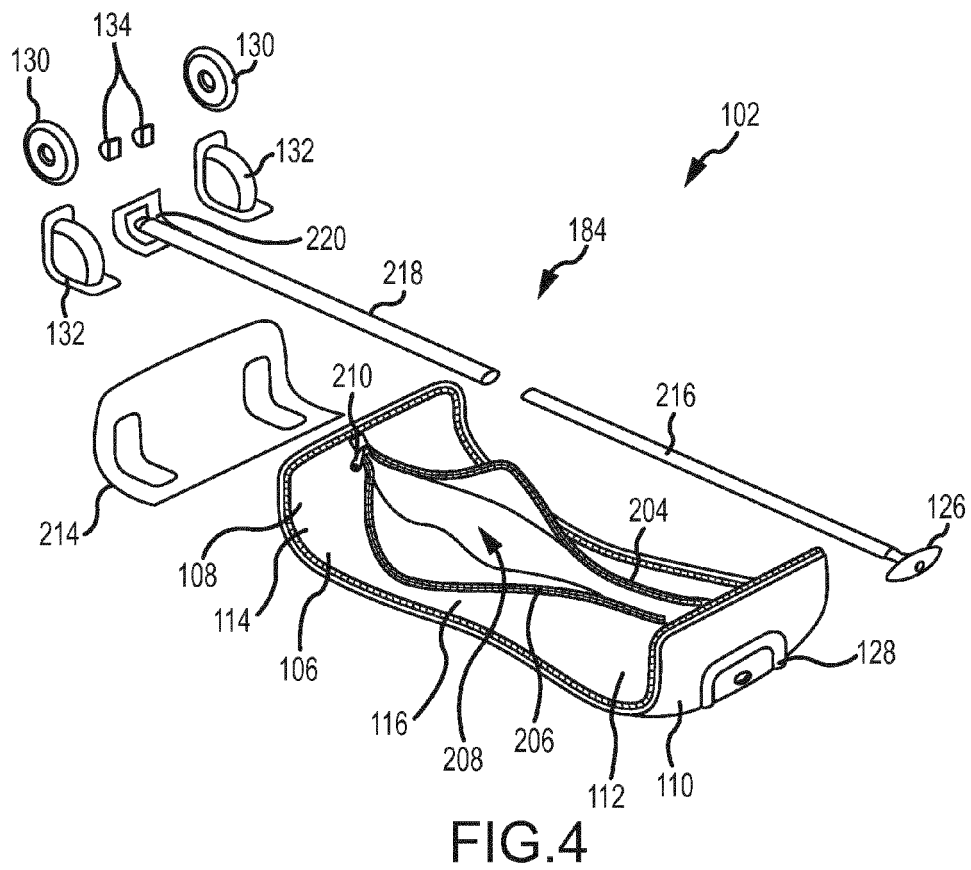
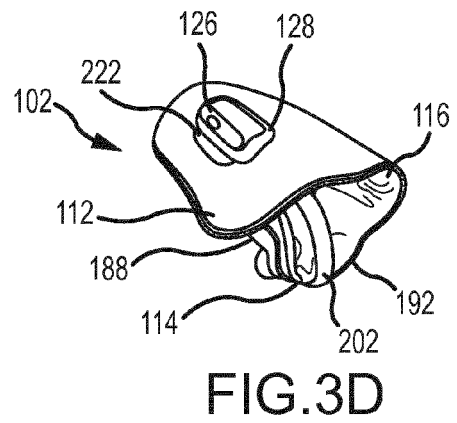
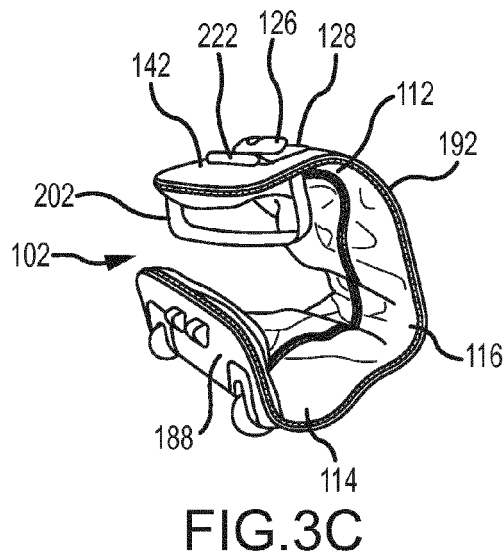
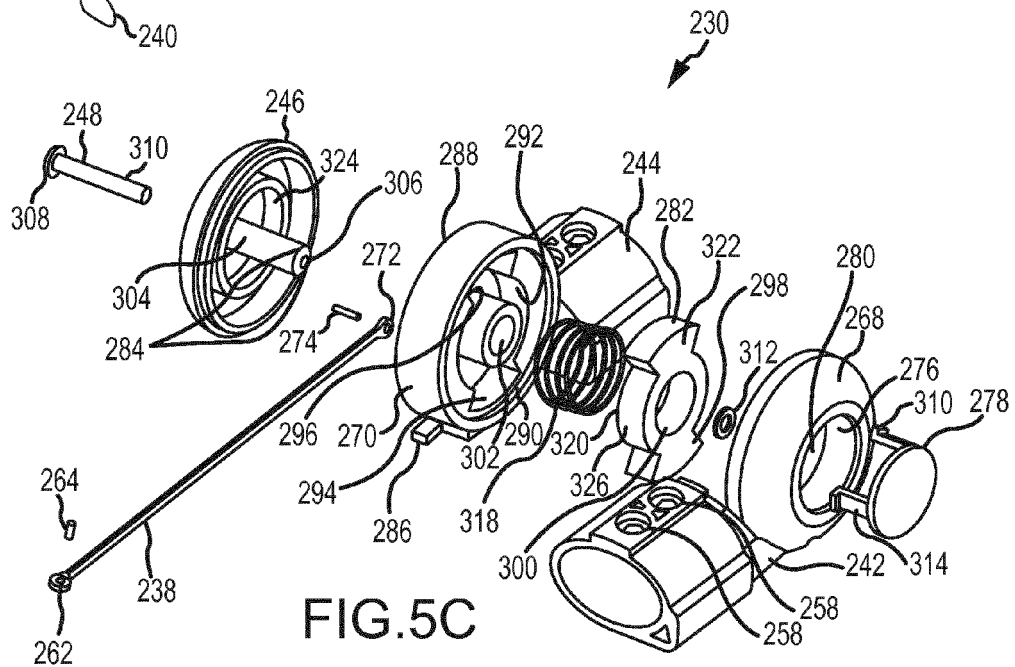
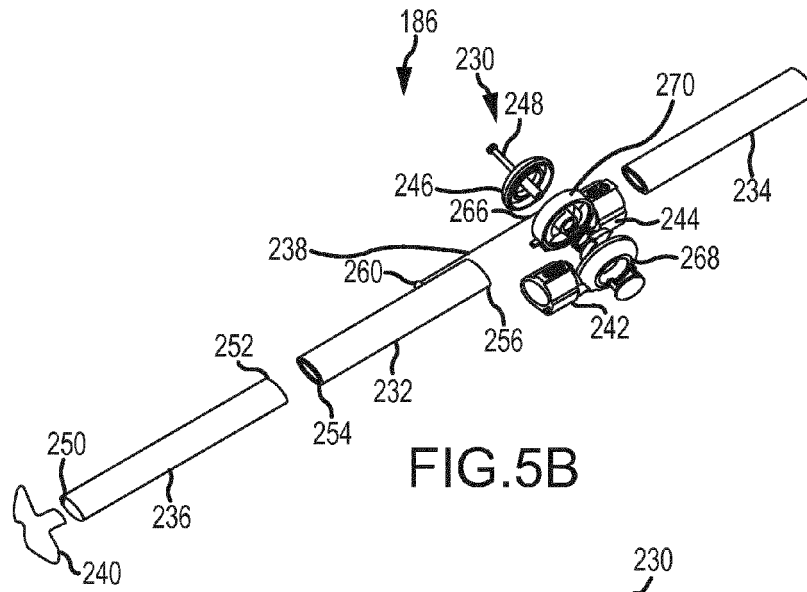
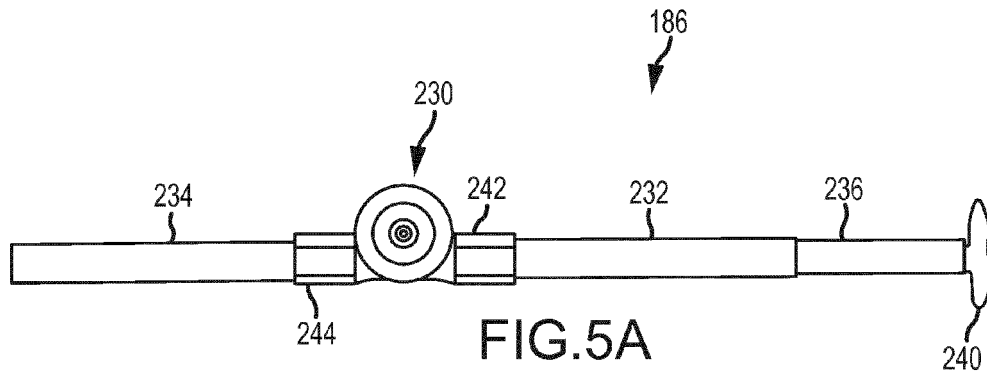


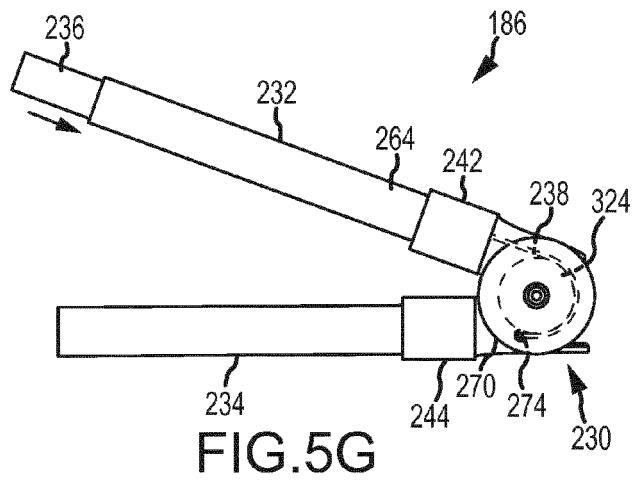
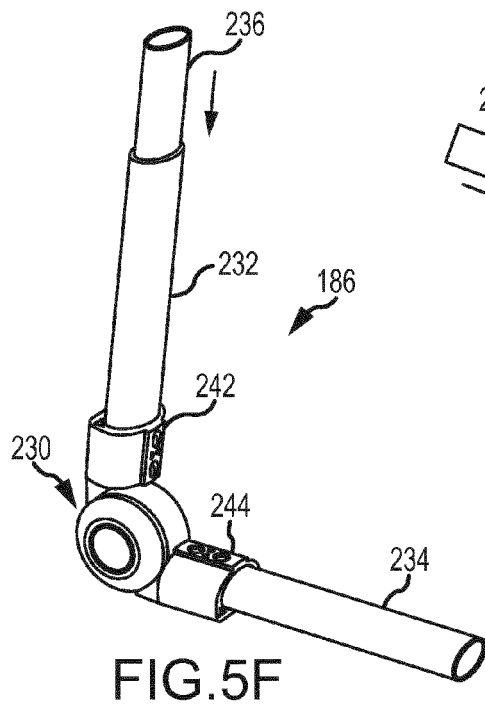
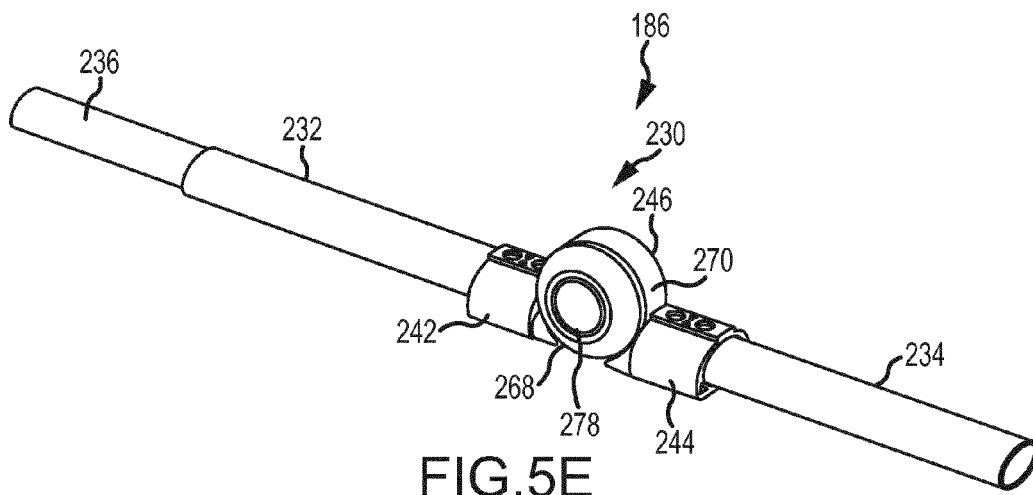
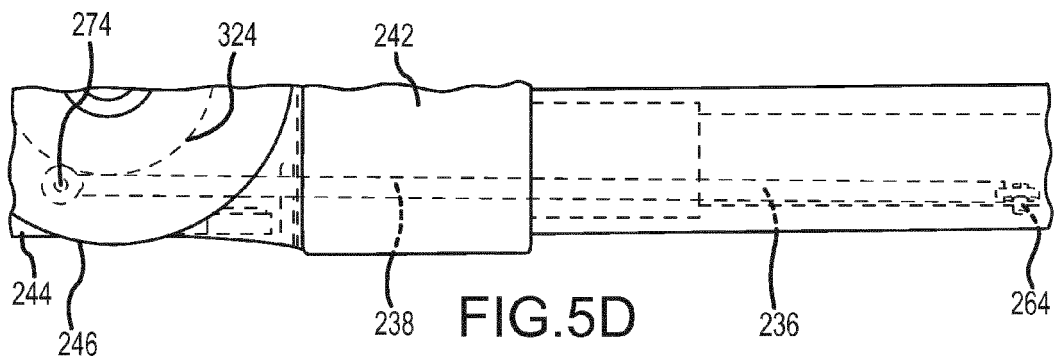
FIG. 2A











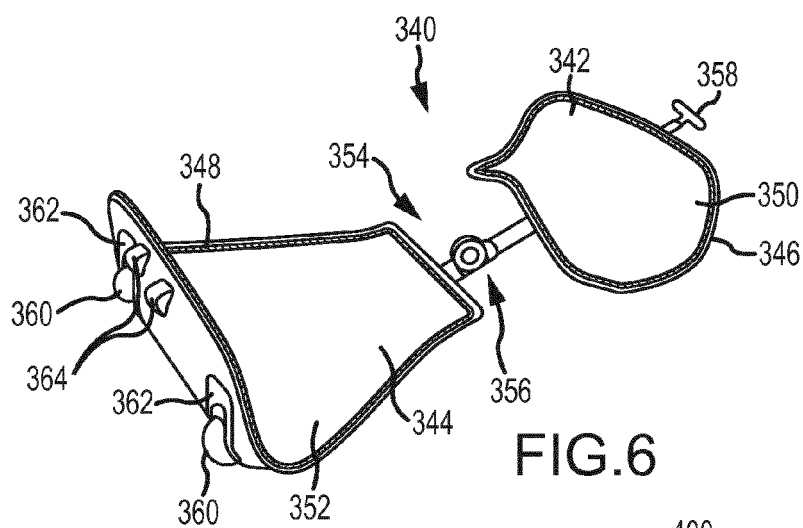


FIG. 6

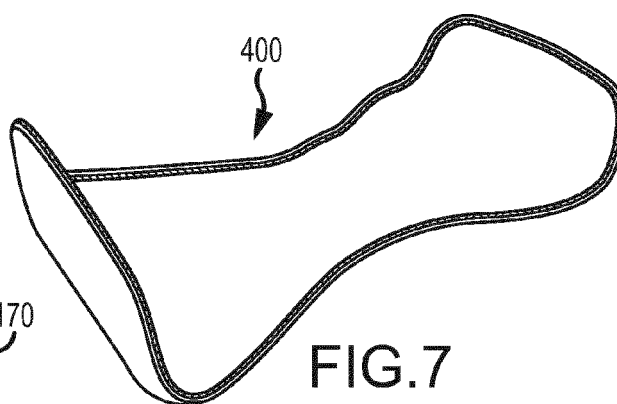


FIG. 7

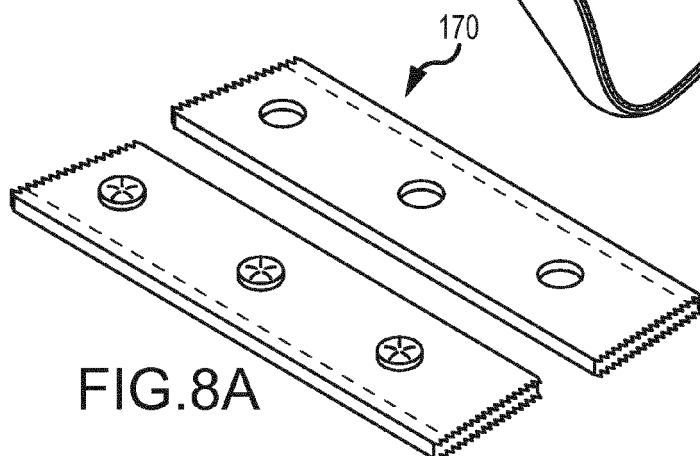


FIG. 8A

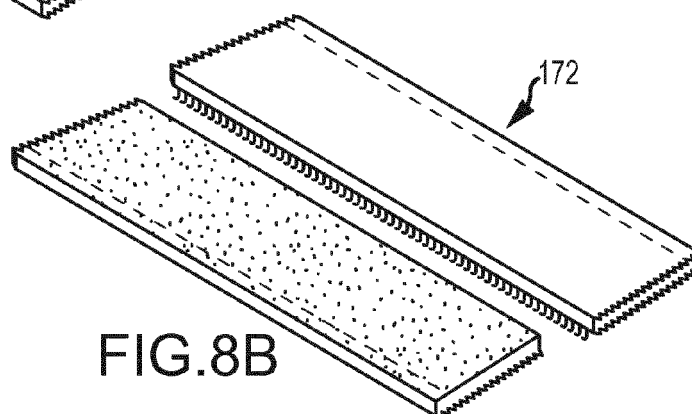
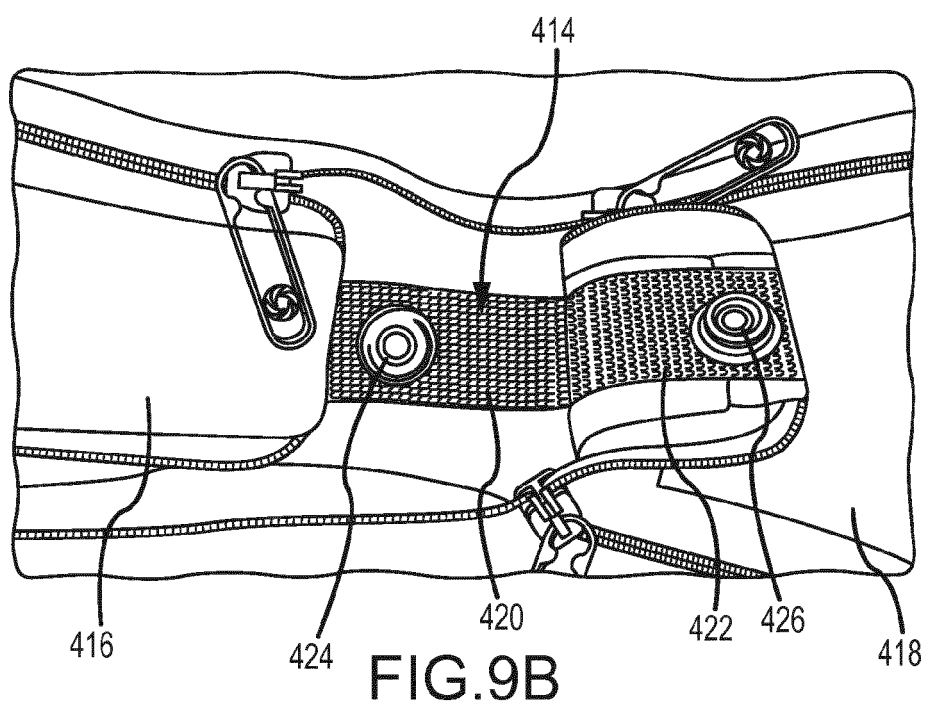
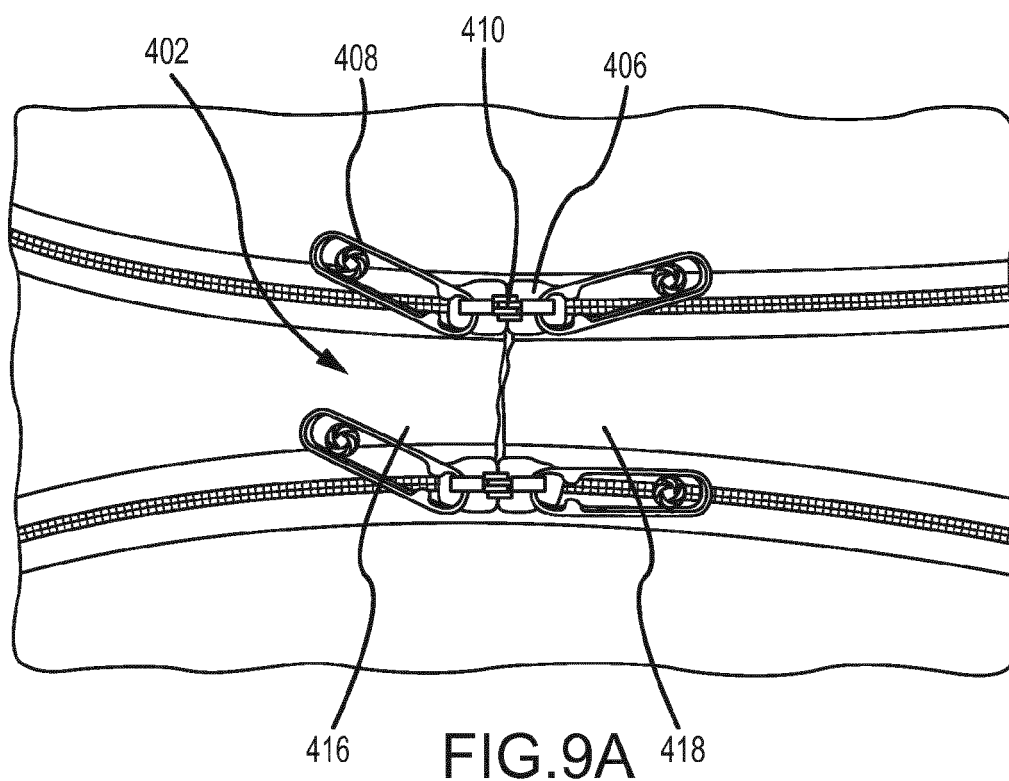
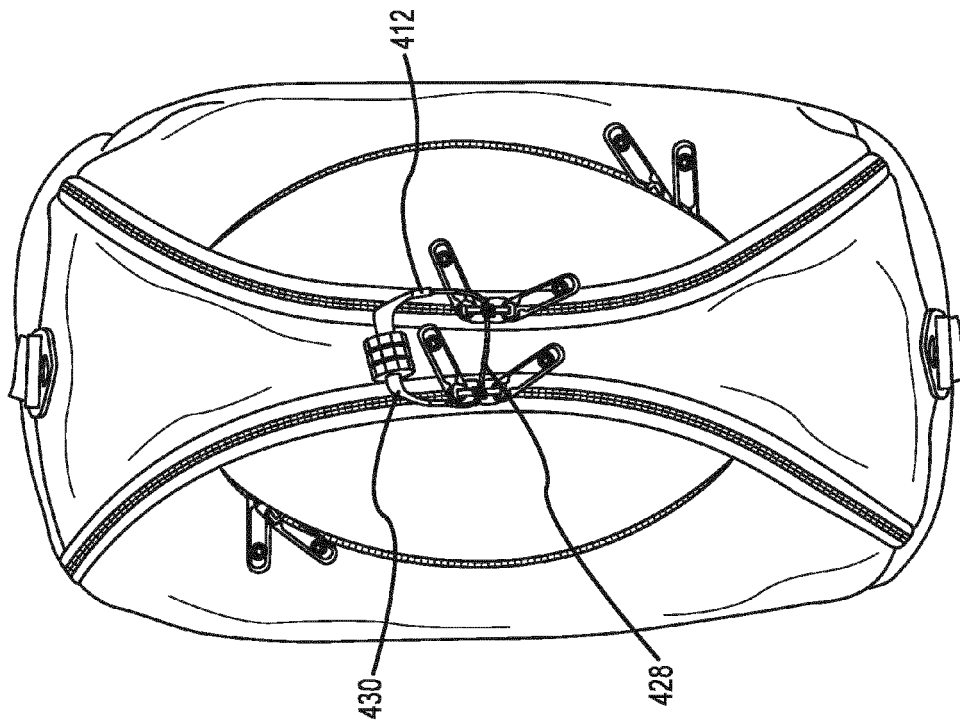
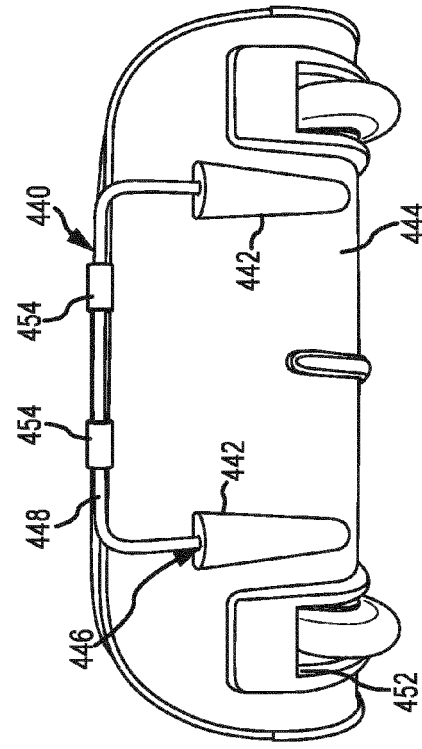
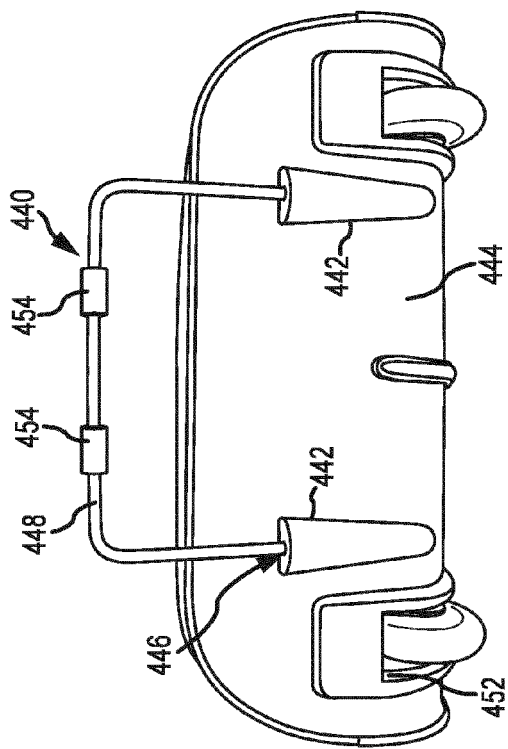


FIG. 8B





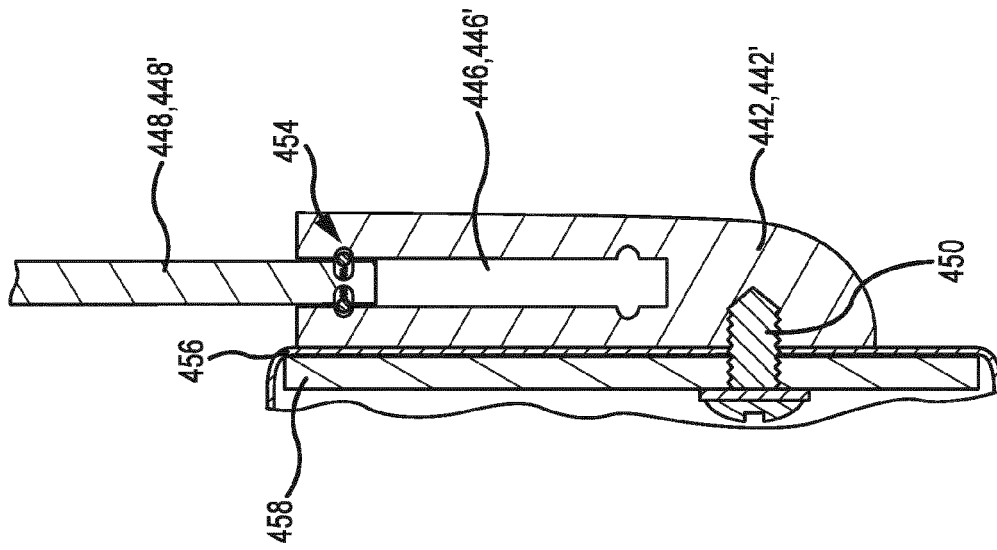


FIG. 11E

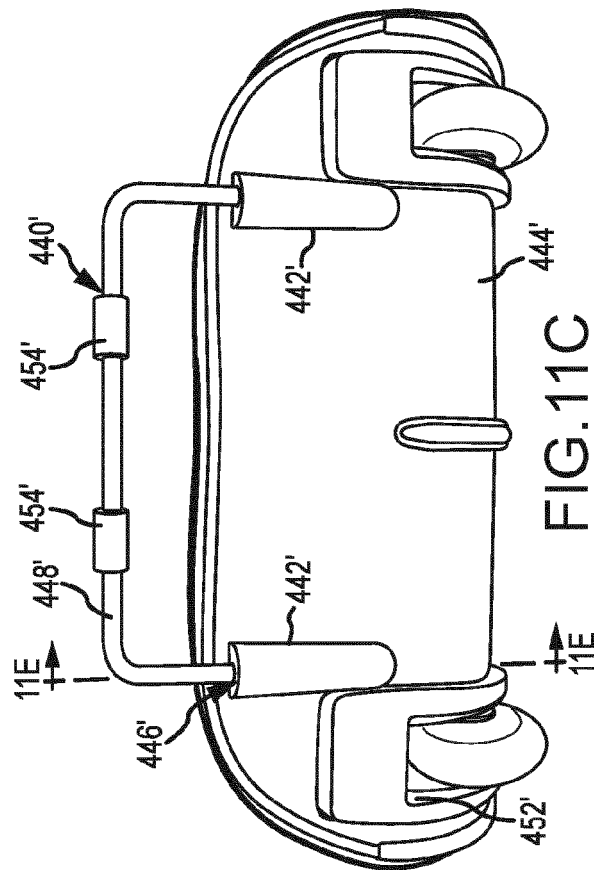


FIG. 11C

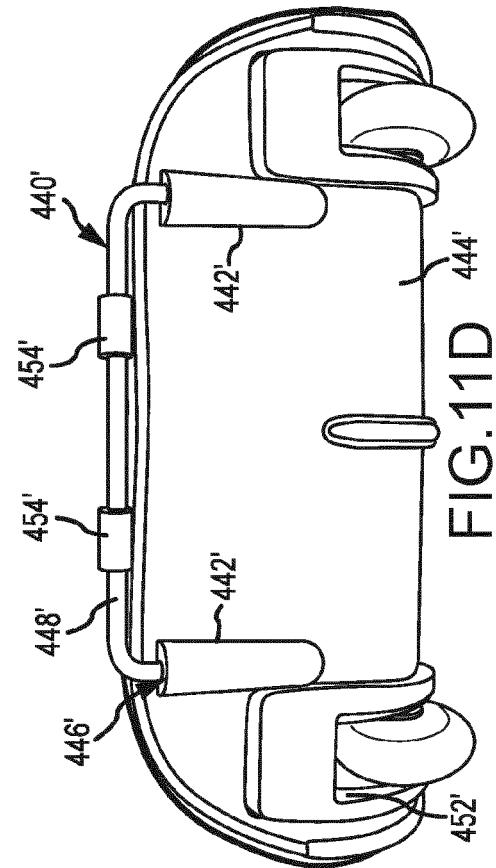


FIG. 11D

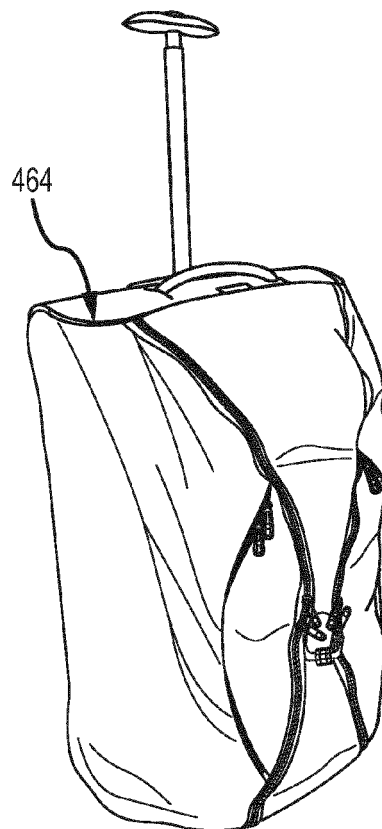
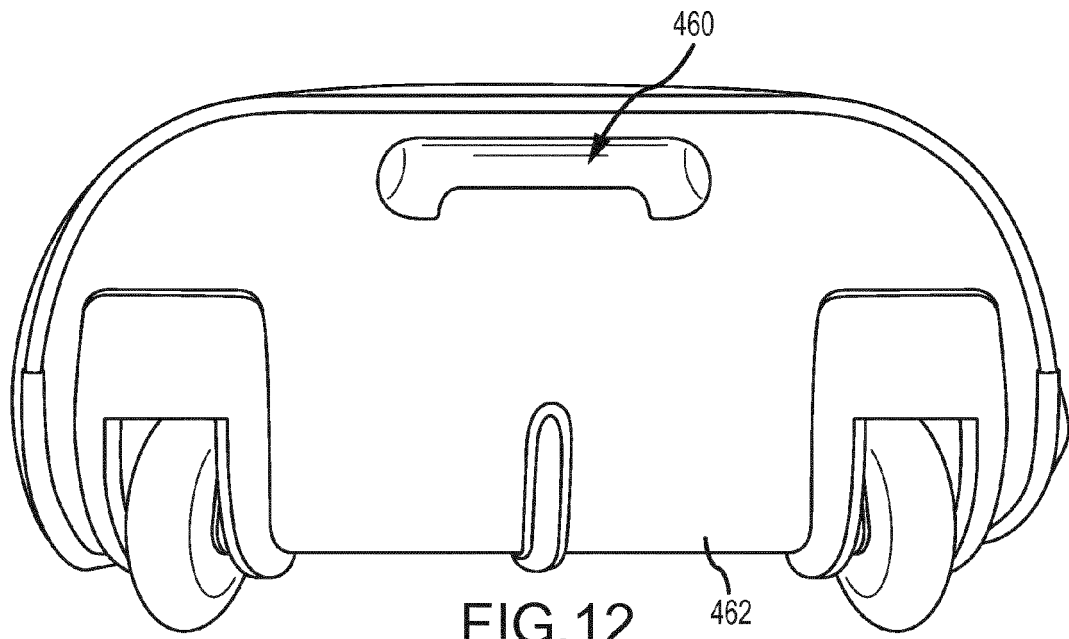


FIG. 13

REFERENCES CITED IN THE DESCRIPTION

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