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(54) BUMPERS FOR PROTECTIVE CASES

(57) A storage case (100) for an electronic device includes a front panel (110) and a back panel (120) attached to the front panel along a first side, a second side, and a bottom edge, forming an interior (150). The front and back panels include an outer layer (160), an inner lining (164), and a foam layer (162) disposed between the outer layer and the inner lining. A protective bumper (200) extending along a length of the interior is disposed between the front panel (110) and the back panel (120) and between the first side and the second side. The protective bumper (200) can have a cushioning member (202) and an attachment element (210) extending below the cushioning member. A seam (220) along the bottom edge can attach the front panel (110), the back panel (120), and the attachment element (210) of the protective bumper (200) so that the protective bumper is affixed within the interior of the storage case.

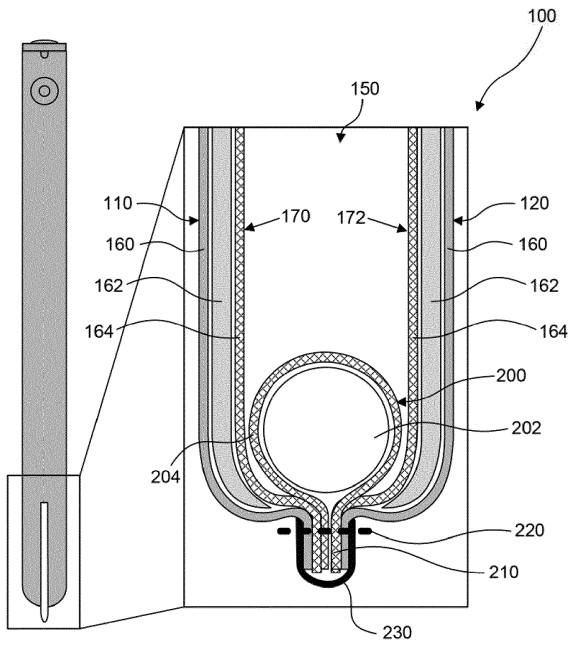

FIG. 1

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Description

BACKGROUND

Field

[0001] Embodiments of the present invention relate to protective cases for electronic devices. More specifically, embodiments of the present invention relate to protective cases for electronic devices having a protective bumper located at the bottom of the storage case for protecting the edges of the electronic device.

Background

[0002] Cases for electronic devices are useful for carrying, storing, and protecting the electronic devices, for example, laptop computers. Some laptop cases include protective elements, but these add cost and make manufacturing more difficult.

BRIEF SUMMARY

[0003] In certain embodiments, a storage case for an electronic device includes a front panel and a back panel attached to the front panel along a first side, a second side, and a bottom edge, forming an interior. The front and back panels can each include an outer layer, an inner lining, and a foam layer disposed between the outer layer and the inner lining. The storage case can also include a protective bumper disposed between the front panel and the back panel, which extends along a length of the interior between the first side and the second side. In certain embodiments, the protective bumper can have a cushioning member and an attachment element extending below the cushioning member. A seam along the bottom edge can attach the front panel, the back panel, and the attachment element of the protective bumper so that the protective bumper is affixed within the interior of the storage case.

[0004] In certain embodiments, the attachment element can be a sleeve that is disposed around the cushioning member of the protective bumper. The sleeve can extend below the cushioning member. In certain embodiments, the cushioning member can have a cylindrical shape. In certain embodiments, the cushioning member can be a foam material. In certain embodiments, the cushioning member can form a concave surface extending upward along an interior surface of the front panel and an interior surface of the back panel. In certain embodiments, the cushioning member can have a first wing and a second wing. The first wing can extend along an interior surface of the front panel and the second wing can extend along an interior surface of the back panel. The cushioning member can be shaped to cradle an electronic device and prevent the electronic device from entering space between the cushioning member and the front and back panels.

[0005] In certain embodiments, the storage case can also include a first side panel that attaches the back panel to the front panel along the first side, and a second side panel that attaches the back panel to the front panel along the second side. The first side panel can attach to a right edge of the back panel and to a left edge of the front panel. The second side panel can attach to a left edge of the back panel and to a right edge of the front panel.

[0006] In certain embodiments, the attachment element of the protective bumper can be a stem integral with the cushioning member. The bottom seam can extend along the stem. In certain embodiments, a portion of the stem can extend beyond the seam and protrude to an exterior of the storage case. The protruding portion can be visible from the exterior of the storage case.

[0007] In certain embodiments, the storage case can also include an edge binding disposed along the bottom edge that substantially covers the seam. In certain embodiments, the seam can be a stitched seam.

[0008] In certain embodiments, the storage case includes a front panel having a left edge, a right edge, a top edge, and a bottom edge, and a back panel having a left edge, a right edge, a top edge, and a bottom edge. The storage case also includes a first side panel having a front edge, a back edge, a top edge, and a bottom edge, and a second side panel having a front edge, a back edge, a top edge, and a bottom edge. The left and right edges of the front panel are attached to the front edges of the first and second side panels, respectively, and the left and right edges of the back panel are attached to the back edges of the second and first side panels, respectively. The storage case also includes a cushioning member having a foam cylinder disposed between the front panel and the back panel and extending along a length between the first side panel and the second side panel. A sleeve can be disposed around the cushioning member. The sleeve can have an attachment portion extending below the cushioning member. A seam can attach the bottom edges of the front panel, the back panel, the first side panel, the second side panel, and the attachment portion of the sleeve. In certain embodiments, seams can attach the left and right edges of the front panel to the front edges of the first and second side panels, respectively, and seams can attach the left and right edges of the back panel to the back edges of the second and first side panels, respectively. The storage case can also include a zipper along the top edges of the front panel, back panel, first side panel, and second side panel.

[0009] Methods of making a storage case for an electronic device are also disclosed herein. In certain embodiments, an exterior cover of the storage case can be formed by attaching a left edge of a front panel to a front edge of a left side panel, attaching a right edge of the front panel to a front edge of a right side panel, attaching a right edge of a back panel to a back edge of the left side panel, and attaching a left edge of the back panel to a back edge of the right side panel. An inner lining of the storage case can be formed by attaching a left edge

of a front liner portion to a right edge of a back liner portion and attaching a right edge of the front liner portion to a left edge of the back liner portion. The inner lining can be inserted within the exterior cover. At least one padding member can be inserted between the inner lining and the exterior cover. Top edges of the exterior cover, the padding member, and the inner lining can be attached. A cushioning member can be wrapped in a sleeve. The sleeve can have a portion extending below the cushioning member. The cushioning member can be inserted between the front liner portion and the back liner portion and the bottom edges of the exterior cover, the inner lining, and the sleeve can be attached. In certain embodiments, the edges can be attached by stitching.

BRIEF DESCRIPTION OF THE DRAWINGS/FIGURES

[0010] The accompanying drawings, which are incorporated herein and form a part of the specification, illustrate the embodiments and, together with the description, further serve to explain the principles of the embodiments and to enable a person skilled in the relevant art(s) to make and use the embodiments.

FIG. 1 illustrates a side view of a storage case with a partial enlarged cross-sectional view according to an embodiment.
FIG. 2 illustrates a front view of a storage case according to an embodiment.
FIG. 3 illustrates a top view of a storage case according to an embodiment.
FIG. 4 illustrates a rear view of a storage case according to an embodiment.
FIG. 5 illustrates a side view of a storage case according to an embodiment.
FIGS. 6A-6C are flowchart diagrams that illustrate steps for making a storage case according to an embodiment.
FIG. 7 illustrates a cross-sectional view of a storage case according to an embodiment.
FIG. 8 illustrates a cross-sectional view of a storage case according to an embodiment.
FIG. 9 illustrates a top view of an interior of a storage case according to an embodiment.
FIG. 10 illustrates a storage case with a strap according to an embodiment.

[0011] The features and advantages of the embodiments will become more apparent from the detailed description set forth below when taken in conjunction with the drawings, in which like reference characters identify corresponding elements throughout. In the drawings, like reference numbers generally indicate identical, functionally similar, and/or structurally similar elements.

DETAILED DESCRIPTION

[0012] The present invention will now be described in detail with reference to embodiments thereof as illustrated in the accompanying drawings. References to "one embodiment," "an embodiment," "some embodiments," "certain embodiments", etc., indicate that the embodiment(s) described may include a particular feature, structure, or characteristic, but every embodiment may not necessarily include the particular feature, structure, or characteristic. Moreover, such phrases are not necessarily referring to the same embodiment. Further, when a particular feature, structure, or characteristic is described in connection with an embodiment, it is submitted that it is within the knowledge of one skilled in the art to affect such feature, structure, or characteristic in connection with other embodiments whether or not explicitly described.

[0013] The term "invention" or "present invention" as used herein is a non-limiting term and is not intended to refer to any single embodiment of the particular invention but encompasses all possible embodiments as described in the application.

[0014] FIGS. 1-5 illustrate a storage case 100 according to an embodiment. Storage case 100 can be a protective case, sleeve, bag, etc. for an electronic device. Although storage case 100 may be referred to generally herein as a "laptop bag", storage case 100 can be configured to carry a variety of electronic devices, for example, but not limited to, a laptop computer, phone, tablet, or any other portable electronic device. In some embodiments, storage case 100 may be configured to carry other portable articles that may require the protective features described herein.

[0015] Some laptop bags include protective elements, for example, padding, to protect the laptop from damage during transport. Some bags have a soft base with foam to protect the laptop when it is placed into the bag or when the bag is placed or dropped on a hard surface. Typically, these bags have at least two sides and a separate base forming a flat bottom between at least two vertical sides. These bags also typically have separate, flat side portions. The bags are therefore generally rectangular in shape. Manufacturing bags of this type is costly and involves many steps for production and inserting foam in the base. Each edge of the base must be attached to the sides of the bag, requiring multiple seams along the bottom of the bag. The flat bottom also makes these bags wider and more bulky for the carrier.

[0016] As described in further detail herein, embodiments of the storage case 100 provide one or more advantages over these and other types of laptop bags. For example, embodiments of storage case 100 are easier and less expensive to manufacture than some laptop bags because it eliminates the flat bottom. This reduces the number of seams required to assemble the bag. Rather than needing up to four seams to attach a padded rectangular base, the bottom of storage case 100 can be attached with just a single seam 220 in some embodiments. This can simplify the manufacturing process. This design also reduces the size of the bag, thereby making

it smaller and lighter to carry.

[0017] The sleek design of embodiments of storage case 100 still provides protection for electronic devices along the bottom of storage case 100. Protective bumper 200 is disposed between front panel 110 and back panel 120 of storage case 100. As shown, for example, in FIG. 1, in certain embodiments protective bumper 200 can be a cylindrical piece of foam disposed along the bottom of storage case 100. When an electronic device is placed into storage case 100, protective bumper 200 can cushion the device and protect the edges of the device. Protective bumper 200 can also reduce the impact on the device if it is dropped into storage case 100, or if storage case 100 itself is dropped. For example, if storage case 100 is dropped on the ground, protective bumper 200 can dampen the vibration and provide cushioning to the electronic device to prevent damage. This is important for electronic devices, which often include small and/or sensitive components that are susceptible to breaking if dropped. For example, a laptop screen could crack if the laptop is dropped on the ground. Protective bumper 200 reduces this risk of breakage.

[0018] The assembly of protective bumper 200 within storage case 100 is also improved over bags with flat padded bottoms. In certain embodiments, protective bumper 200 can include a sleeve 204 that can be wrapped around cushioning member 202. Sleeve 204 can have an attachment element 210 that extends below cushioning member 202 and can be attached to the bottom edges of front panel 110 and back panel 120 along a single seam 220. In some embodiments, this single seam may allow for quick, simple assembly, thereby reducing production costs.

[0019] As shown in FIGS. 7 and 8, in certain embodiments cushioning member 202 can also have a stem 212 extending below cushioning member 202, which can be directly attached to front panel 110 and back panel 120 along seam 220. This can also simplify the manufacturing and assembly process of storage case 100. In other embodiments, for example, the embodiments illustrated in FIGS. 7 and 8, cushioning member 202 of protective bumper 200 can have a first wing 214 and a second wing 216 configured to prevent the electronic device from slipping into a space between protective bumper 200 and the front and back panels 110, 120. As also shown in FIGS. 7 and 8, cushioning member 202 can have a curved surface to cradle the electronic device inside storage case 100. This can further protect the electronic device from sliding or moving around inside storage case 100.

[0020] Referring now specifically to the drawings, FIG. 1 illustrates a cross-section of storage case 100 according to an embodiment. In certain embodiments, storage case 100 can include front panel 110 and back panel 120. Front panel 110 and back panel 120 can be various shapes and sizes, for example, square or rectangular. In certain embodiments, front panel 110 and back panel 120 can have curved corners. In certain embodiments, front panel 110 and back panel 120 can be the same shape and size. In other embodiments, front panel 110 and back panel 120 can be different shapes and sizes. Generally, the shape and size of storage case 100 can be configured to hold electronic devices of standard sizes. For example, storage case 100 can be configured to hold a 15-inch laptop, although many other sizes are contemplated. The size and shape of certain embodiments of storage case 100 can be configured to hold a specific electronic device, for example, an iPad made by APPLE INC.

[0021] Front panel 110 and back panel 120 can be a single layer of material or one or both of these components can be multi-layered. For example, front panel 110 and back panel 120 can each include outer layer 160, inner lining 164, and padding layer 162. Different materials can be used for outer layer 160, inner lining 164, and padding layer 162. Materials other than those disclosed herein for outer layer 160, inner lining 164, and padding layer 162 are contemplated and the materials are not limited to the examples disclosed herein. In certain embodiments, outer layer 160, inner lining 164, and/or padding layer 162 can include multiple materials. For example, outer layer 160 can have a patchwork design made from different materials.

[0022] In certain embodiments, padding layer 162 can be made of a foam material. For example, padding layer 162 can be a polyethylene (PE) foam. Other padding and cushioning materials, for example, polystyrene or composite materials, can also be used. The thickness of padding layer 162 can be adjusted to provide more or less padding. For example, in one embodiment padding layer 162 can be about 1-10 mm thick. In one embodiment, padding layer 162 is about 5 mm thick.

[0023] Outer layer 160 and inner lining 164 can be woven or non-woven materials. Outer layer 160 and inner lining 164 can be natural, synthetic, or composite materials of varying stiffness, flexibility, durability, etc. For example, outer layer 160 can be canvas, leather, cloth, polyester, or any other material. In certain embodiments, inner lining 164 can be polyester.

[0024] A protective bumper 200 can be located within an interior 150 of storage case 100 between interior surface 170 of front panel 110 and interior surface 172 of back panel 120. In certain embodiments, protective bumper 200 can contact interior surfaces 170 and 172. Generally, protective bumper 200 runs along a length of storage case 100 at the bottom of storage case 100. Protective bumper 200 can run along the entire length or only part of the bottom of storage case 100.

[0025] Protective bumper 200 is configured to cushion and protect an electronic device that is inside storage case 100. For example, if a laptop is dropped into storage case 100, protective bumper 200 cushions the laptop as it hits the bottom of storage case 100. In particular, protective bumper 200 can protect the edges of the laptop from dents or scratches. Protective bumper 200 also reduces the impact and dampens vibrations as the laptop

hits the bottom of storage case 100, thereby protecting the components of the laptop from damage. Similarly, if storage case 100 itself is dropped, protective bumper 200 cushions the electronic device from the impact.

[0026] In certain embodiments, protective bumper 200 includes a cushioning member 202. Cushioning member 202 can be a variety of shapes, sizes, and materials. For example, as illustrated in FIG. 1, in certain embodiments, cushioning member 202 can have a cylindrical shape. Using a cylindrical shape has the advantage being easily produced, for example, by extruding a material for cushioning member 202. In some embodiments, cushioning member 202 can be tubular, having a hollow interior space. Cushioning member 202 can also be square, rectangular, triangular, hexagonal, or any other shape including a free-form shape. For example, cushioning member 202 can be a sideways "C" shape or "V" or "Y" shape, configured to cradle the electronic device.

[0027] Generally, cushioning member 202 is made from a material that provides cushioning to the electronic device and dampens vibrations when the electronic device hits the bottom of storage case 100 or when storage case 100 is dropped. For example, cushioning member 202 can be made from a foam material. In certain embodiments, cushioning member 202 can be made from polyethylene (PE) foam. Other padding and cushioning materials, for example, polystyrene or composite materials, can also be used. Cushioning member 202 can be formed, for example, by extruding, injection molding, blow molding, knitting, or other manufacturing processes. For example, a piece of material can be cut, shaved, shaped, etc. to form cushioning member 202.

[0028] The size of cushioning member 202 can be based on the size of storage case 100. Generally, cushioning member 202 can extend along an entire length of the bottom of storage case 100. In certain embodiments, cushioning member 202 extends only along part of the length of storage case 100. In certain embodiments, multiple cushioning members 202 can be used, each extending along part of the length of storage case 100. Generally, cushioning member 202 is configured to fit between front panel 110 and back panel 120 and to minimize and space between cushioning member 202 and the front and back panels 110 and 120. In certain embodiments, cushioning member 202 can contact both front and back panels 110 and 120.

[0029] The thickness of cushioning member 202 can also be based on the size of the storage case 100 and also, for example, the anticipated size and weight of the electronic device to be stored in storage case 100. For example, if storage case 100 is configured to hold a heavy article, such as a laptop, the thickness of cushioning member 202 may be greater than if storage case 100 is configured to hold a lighter article, such as a tablet. In certain embodiments where cushioning member 202 is cylindrical, the diameter of cushioning member 202 can be about 10 mm. Larger and small diameters for cushioning member 202 are also contemplated. For example, cushioning member 202 can have a diameter between about 5mm to about 30mm.

[0030] Protective bumper 200 can have an attachment element 210 which extends below cushioning member 202. In certain embodiments, attachment element 210 can be part of a sleeve 204 which wraps around all or a portion of cushioning member 202. In one embodiment, sleeve 204 may extend along the length of cushioning member 202. In another embodiment, sleeve 204 may extend partially along the length of cushioning member 202. Sleeve 204 can be made from the same material as inner lining 164 or from a different material. Attachment element 210 can be attached to bottom edges of front panel 110 and back panel 120 to affix protective bumper 200 within interior 150 of storage case 100. For example, a seam 220 along the bottom edges of attachment element 210, front panel 110, and back panel 120 can attach these components together. In certain embodiments, seam 220 can be a stitched seam, for example, sewn using a mechanical sewing device or by hand. In some embodiments, seam 220 may comprise a stitchless seam made, for example, by using heat sealing, laminating, adhesives, thermoplastic tape, and other suitable methods. In some embodiments, seam 220 may include a stitched seam and a stitchless seam.

[0031] In some embodiments, a single seam 220 is provided. Having a single seam attach the front panel 110 and back panel 120 that also affixes the protective bumper 200 between them can simplify the manufacturing process, thereby reducing production costs. In other embodiments, more than one seam 220 may be provided and the features of the protective bumper 200 may provide similar advantages.

[0032] In certain embodiments, edge binding 230 can be used to cover all or part of seam 220 along the bottom of storage case 100. Edge binding 230 can provide protection to seam 220, making storage case 100 more durable. Edge binding 230 can be made from the same material as outer layer 160 or from a different material. In certain embodiments, edge binding 230 can be a grosgrain material.

[0033] FIG. 2 illustrates a front view of storage case 100 according to an embodiment. FIG. 2 shows front panel 110, first side panel 130, and second side panel 140. First side panel 130 and second side panel 140 can be made from the same material as front panel 110 (or back panel 120) or from a different material. Front panel 110 can include left edge 112, right edge 114, top edge 116, and bottom edge 118. First side panel 130 can include front edge 132, back edge 134 (see FIG. 4), top edge 136, and bottom edge 138. Second side panel 140 can include front edge 142, back edge 144 (see FIG. 4), top edge 146, and bottom edge 148.

[0034] In certain embodiments, left edge 112 of front panel 110 can be attached to front edge 132 of first side panel 130 and right edge 114 of front panel 110 can be attached to front edge 142 of second side panel 140. Similarly, as illustrated in FIG. 4, right edge 124 of back

panel 120 can be attached to back edge 134 of first side panel 130 and left edge 122 of back panel 120 can be attached to back edge 144 of second side panel 140. Attaching panels in this manner can create a curve to side panels 130 and 140 such that side panels 130 and 140 have a rounded edge rather than forming a flat side.

[0035] In certain embodiments, front panel 110, first side panel 130, and second side panel 140 can be attached along their respective bottom edges 118, 138, and 148 by seam 220. In certain embodiments, edge binding 230 can cover part or all of seam 220. In certain embodiments, edge binding 230 can extend upward along first side panel 130 and/or second side panel 140, as also shown in FIG. 5. In certain embodiments, edge binding 230 can be stitched to storage case 100. Other means of attaching edge binding 230 to storage case 100 are also contemplated, for example, using an adhesive.

[0036] In certain embodiments, front panel 110, first side panel 130, and/or second side panel 140 can have one or more pockets. For example, as shown in FIG. 2, front panel 110 can have a pocket 340. Pocket 340 can be configured to hold auxiliary devices for the electronic device, for example, a power cord. In certain embodiments, zipper 300 can be used to open and close pocket 340. Other closure mechanisms, for example, buttons, snaps, or VELCRO can be used to close pocket 340.

[0037] FIG. 3 illustrates a top view of storage case 100 according to an embodiment. As shown in FIG. 3, zipper 300 can run along top edges 116, 126, 136, and 146 of front panel 110, back panel 120, first side panel 130, and second side panel 140, respectively. Zipper 300 can be used to close and open storage case 100 to hold the electronic device inside. In certain embodiments, tabs 324 for buttons 320 can be located at one or both ends of zipper 300. In certain embodiments, tabs 324 can be a grosgrain material. As shown in FIG. 5, a corresponding snap 322 for button 320 can be located on first side panel 130 and/or second side panel 140. Other fastening mechanisms can also be used.

[0038] FIG. 4 illustrates a rear view of storage case 100 according to an embodiment. FIG. 4 shows back panel 120, first side panel 130, and second side panel 140 of storage case 100. Back panel 120 can have left edge 122, right edge 124, top edge 126, and bottom edge 128. In certain embodiments, left edge 122 of back panel 120 can attach to back edge 144 of second side panel 140 and right edge 124 of back panel 120 can attach to back edge 134 of first side panel 130. In certain embodiments, bottom edges 128, 138, and 148 of back panel 120, first side panel 130, and second side panel 140, respectively, can be attached by seam 220. So as shown by FIGS. 2 and 4, a single bottom seam 220 can attach front panel 110, back panel 120, first side panel 130, and second side panel 140. Seam 220 can close off the bottom of storage case 100.

[0039] In certain embodiments, one or more attachments points 310 can be located on back panel 120. Attachment points can be located on other panels as well. Attachment points 310 can include, for example, loops or hooks for a attaching a detachable shoulder strap to facilitate carrying storage case 100. In certain embodiments, attachment points 310 can be located symmetrically on back panel 120. In other embodiments, attachment points 310 can be located asymmetrically on back panel 120.

[0040] FIG. 5 illustrates a right side view of storage case 100 according to an embodiment. As shown in FIG. 5, tab 324 having button 320 can have a corresponding snap 322 disposed on second side panel 140. In certain embodiments, edge binding 230 can extend upward along second side panel 140. Similar structures can be disposed on first side panel 130.

[0041] FIGS. 6A-6C illustrate steps for a method of making storage case 100 according to an embodiment. FIG. 6A illustrates process 600 for making an exterior cover of storage case 100. At step 602, left edge 112 of front panel 110 is attached to front edge 132 of first (left) side panel 130. At step 604, right edge 114 of front panel 110 is attached to front edge 142 of second (right) side panel 140. At step 606, right edge 124 of back panel 120 is attached to back edge 134 of first (left) side panel 130. At step 608, left edge 122 of back panel 120 is attached to back edge 144 of second (right) side panel 140.

[0042] The panels can be attached in the order described above or in a different order. In certain embodiments, the panels are attached by seams, for example, stitched seams. Other means of attaching the panels are contemplated, for example, by laminating the edges of the panels together or using an adhesive.

[0043] FIG. 6B illustrates process 610 for making an inner lining of storage case 100. At step 612, a left edge of a front liner portion is attached to a right edge of a back liner portion. At step 614, a right edge of the front liner portion is attached to a left edge of the back liner portion. The edges of the front and back liner portions can be attached in the opposite order. In certain embodiments, the front and back liner portions are attached by stitching the edges together.

[0044] FIG. 6C illustrates process 620 for making a storage case 100 from the exterior cover and inner lining created according to the processes described with respect to FIGS. 6A and 6B. After processes 610 and 620, the exterior cover and inner lining are each in the form of a tube or ring of material. At step 622, the inner lining tube is inserted within the exterior cover tube, with the tubes being generally concentric about an axis. At step 624, a padding member is inserted between the inner lining and the exterior cover. More than one padding member can be inserted and at various locations. At step 626, the top edges of the exterior cover, padding member(s), and inner lining are attached, holding these components together. At step 628, a cushioning member is wrapped in a sleeve. For example, a piece of material that is the same as the inner lining can be wrapped around the cushioning member such that both ends of the ma-

terial extend below the cushioning member. At step 630, the cushioning member wrapped in the slave is inserted between the front liner portion and back liner portion of the inner lining. At step 632, the bottom edges of the exterior cover, inner lining, and sleeve are attached together. This closes the bottom of the storage case and affixes the cushioning member within an interior of the storage case. In certain embodiments, a single seam, for example, a stitched seam, attaches the bottom edges of the exterior cover, inner lining, and sleeve together.

[0045] FIG. 7 illustrates a cross-section of storage case 100 according to an embodiment. Front panel 110 and back panel 120 can be the same as described above with respect to FIG. 1. FIG. 7 illustrates an embodiment where the attachment element of protective bumper 200 is a stem 212 integrally formed with cushioning member 202. Stem 212 extends below cushioning member 202. In certain embodiments, protective bumper 200 can be formed, for example, in a mold, so that its shape has the cross-section shown in FIG. 7. In some embodiments, protective bumper 200 may comprise a "T" or "Y" shape. Variations of this "T" or "Y" shape are also contemplated.

[0046] The length of stem 212 can vary, but generally stem 212 is long enough so that seam 220 can attach front panel 110, back panel 120, and stem 212. For example, a stitched seam can run through front panel 110, back panel 120, and stem 212 of cushioning member 202. As shown in FIG. 7, in some embodiments, there is no sleeve around cushioning member 202. Rather, the seam 220 can run directly through stem 212 to affix protective bumper 200 in place. Therefore, as in the embodiment shown in FIG. 1, only a single seam 220 is needed to attach front panel 110, back panel 120, and stem 212 to affix protective bumper 200 inside storage case 100. The size, shape, length, and location of seam 220 in FIG. 1 are illustrative and other variations are contemplated. In certain embodiments, edge binding 230 can cover seam 220 and stem 212 of protective bumper 200. In some embodiments, sleeve 204 may be used in conjunction with a cushioning member 202 having a stem 212.

[0047] In certain embodiments, cushioning member 202 can include first wing 214 and second wing 216. First wing 214 and second wing 216 can contact interior surface 170 of front panel 110 and interior surface 172 of back panel 120, respectively. In certain embodiments, first wing 214 and second wing 216 can extend upward along interior surface 170 of front panel 110 and interior surface 172 of back panel 120, respectively. This can provide a curved upper surface of cushioning member 202 to cradle and stabilize the electronic device inside storage case 100. Wings 214 and 216 can also provide a greater surface area to cushion the electronic device. Wings 214 and 216 can also prevent an electronic device placed within storage case 100 from entering a space between protective bumper 200 and front panel 110 or back panel 120. If the electronic device enters this space, rather than resting on protective bumper 200, it may not receive the protective benefits of protective bumper 200.

[0048] FIG. 8 illustrates a cross-section of storage case 100 according to an embodiment. Front panel 110 and back panel 120 can be the same as described above with respect to FIG. 1. Like protective bumper 200 shown in FIG. 7, protective bumper 200 shown in FIG. 8 can include first wing 214 and second wing 216, along with stem 212 extending below cushioning member 202. As shown in FIG. 8, in some embodiments, stem 212 can have protruding portion 218 which extends to an exterior of storage case 100. Protruding portion 218 can be visible from the outside of storage case 100. In certain embodiments, protruding portion 218 can have a wider cross-sectional area than stem 212 of protective bumper 200. Seam 220 can attach front panel 110, back panel 120, and stem 212 of protective bumper 200. In certain embodiments, no edge binding is used, which can leave protruding portion 218 of protective bumper 200 exposed along an exterior of storage case 100. Thus, protruding portion 218 itself can provide exterior protection to storage case 100.

[0049] FIG. 9 illustrates a top view of interior 150 of storage case 100. As shown in FIG. 9, protective bumper 200 can run along a length of storage case 100 between interior surface 170 of front panel 110 and interior surface 172 of back panel 120. In some embodiments, protective bumper 200 can extend upward along an interior of second side panel 140 and/or first side panel 130. This elongated "U" shape can provide additional protection for the electronic device along the sides of storage case 100. In particular, this can help protect the corners of the electronic device from being damaged and help to further cradle the electronic device within storage case 100.

[0050] FIG. 10 illustrates storage case 100 according to an embodiment. FIG. 10 shows front panel 110, first side panel 130, and second side panel 140. Additionally, FIG. 10 shows strap 330. In certain embodiments, strap 300 can be removably attached to storage case 100. For example, strap 330 can attach to one or more attachment points 310 (see FIG. 4). In certain embodiments, attachment points 310 can be located on back panel 120. In certain embodiments, strap 330 can have hooks, clasps, etc. on one or both ends for attaching to attachment points 310 located on storage case 100. Other attachment mechanisms for strap 330 are contemplated. In certain embodiments, strap 330 can be an adjustable strap.

[0051] It is to be appreciated that the Detailed Description section, and not the Brief Summary and Abstract sections, is intended to be used to interpret the claims. The Summary and Abstract sections may set forth one or more but not all exemplary embodiments of storage cases as contemplated by the inventor, and thus, are not intended to limit the present invention and the appended claims in any way.

[0052] The present invention has been described above with the aid of functional building blocks illustrating the implementation of specified functions and relationships thereof. The boundaries of these functional building blocks have been arbitrarily defined herein for the con-

venience of the description. Alternate boundaries can be defined so long as the specified functions and relationships thereof are appropriately performed.

[0053] The foregoing description of the specific embodiments will so fully reveal the general nature of the invention that others can, by applying knowledge within the skill of the art, readily modify and/or adapt for various applications such specific embodiments, without undue experimentation, without departing from the general concept of the present invention. Therefore, such adaptations and modifications are intended to be within the meaning and range of equivalents of the disclosed embodiments, based on the teaching and guidance presented herein. It is to be understood that the phraseology or terminology herein is for the purpose of description and not of limitation, such that the terminology or phraseology of the present specification is to be interpreted by the skilled artisan in light of the teachings and guidance.

[0054] The breadth and scope of the present invention should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with the following claims and their equivalents.

Claims

1. A storage case (100) for an electronic device, comprising:

   a front panel (110);
   a back panel (120) attached to the front panel (110) along a first side, a second side, and a bottom edge, forming an interior (150);
   a protective bumper (200) disposed between the front panel (110) and the back panel (120) and extending along a length of the interior (150) between the first side and the second side, the protective bumper (200) having a cushioning member (202) and an attachment element (210) extending below the cushioning member (202); and
   a seam (220) along the bottom edge attaching the front panel (110), the back panel (120), and the attachment element (210) such that the protective bumper (200) is affixed within the interior (150).

2. The storage case of claim 1, wherein the attachment element (210) comprises a sleeve (204) disposed around and extending below the cushioning member (202).

3. The storage case of claim 1, wherein the cushioning member (202) has a cylindrical shape.

4. The storage case of claim 1, wherein the cushioning member (202) comprises a foam material.

5. The storage case of claim 1, wherein the front and back panels (110, 120) each comprise an outer layer (160), an inner lining (164), and a padding layer (162) disposed between the outer layer (160) and the inner lining (164).

6. The storage case of claim 1, further comprising a first side panel (130) attaching the back panel (120) to the front panel (110) along the first side, and a second side panel (140) attaching the back panel (120) to the front panel (110) along the second side.

7. The storage case of claim 6, wherein the first side panel (130) attaches to a right edge (124) of the back panel (120) and to a left edge (112) of the front panel (110), and wherein the second side panel (140) attaches to a left edge (122) of the back panel (120) and to a right edge (114) of the front panel (110).

8. The storage case of claim 1, further comprising an edge binding (230) disposed along the bottom edge and substantially covering the seam (220).

9. The storage case of claim 1, wherein the cushioning member (202) forms a concave surface extending upward along an interior surface (170) of the front panel (110) and an interior surface (172) of the back panel (120).

10. The storage case of claim 1, wherein the seam (220) comprises a stitched seam.

11. The storage case of claim 1, wherein the attachment element (210) comprises a stem (212) integral with the cushioning member (202), and wherein the seam (220) extends along the stem (212).

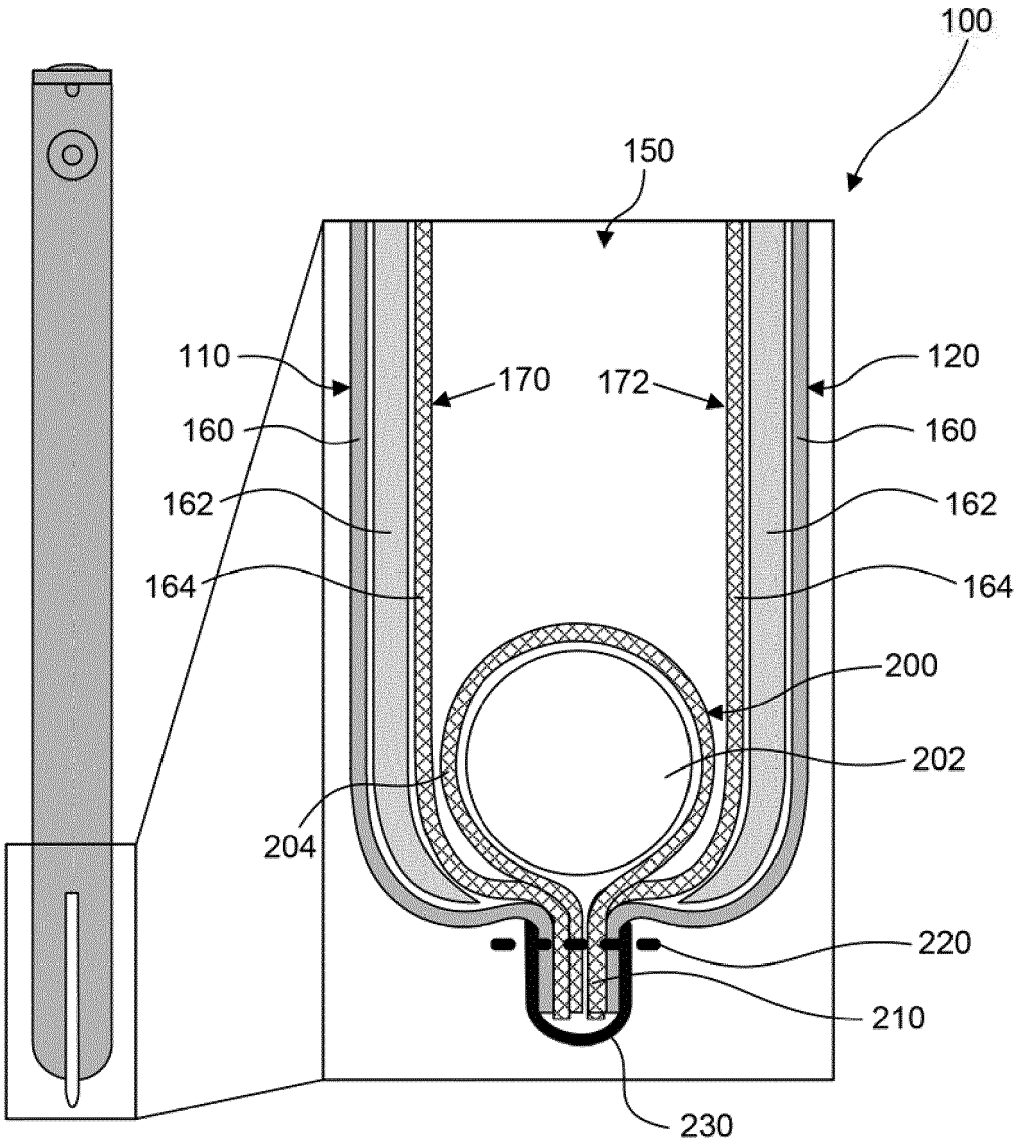
12. The storage case of claim 11, wherein the cushioning member (202) comprises a first wing (214) and a second wing (216), wherein the first wing (214) extends along an interior surface (170) of the front panel (110) and the second wing (216) extends along an interior surface (172) of the back panel (120).

13. The storage case of claim 1, wherein the cushioning member (202) is shaped to cradle an electronic device and prevent the electronic device from entering space between the cushioning member (202) and the front and back panels (110, 120).

14. The storage case of claim 11, wherein a portion of the stem (212) extends beyond the seam (220), protrudes to an exterior of the storage case (100), and is visible from the exterior of the storage case (100).

15. The storage case of claim 14, wherein the cushioning member (202) comprises a first wing (214) and a second wing (216), wherein the first wing (214) ex-

tends along an interior surface (170) of the front panel (110) and the second wing (216) extends along an interior surface (172) of the back panel (120).


100
150
110
170
172
120
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160
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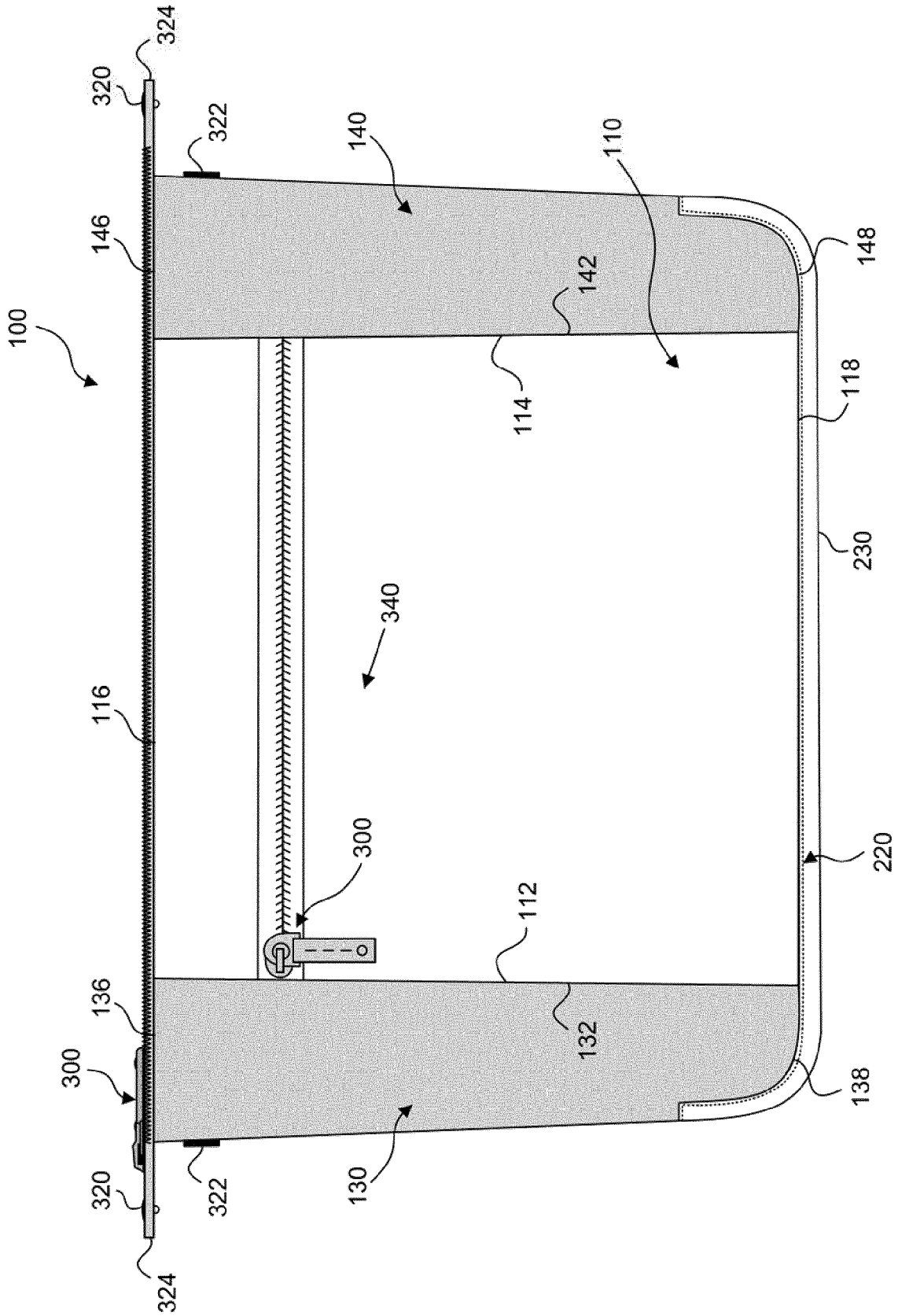
162
164
164
200
202
204
220
210
230

FIG. 1


100
110
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116
118
130
132
136
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140
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146
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220
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300
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324
340

FIG. 2

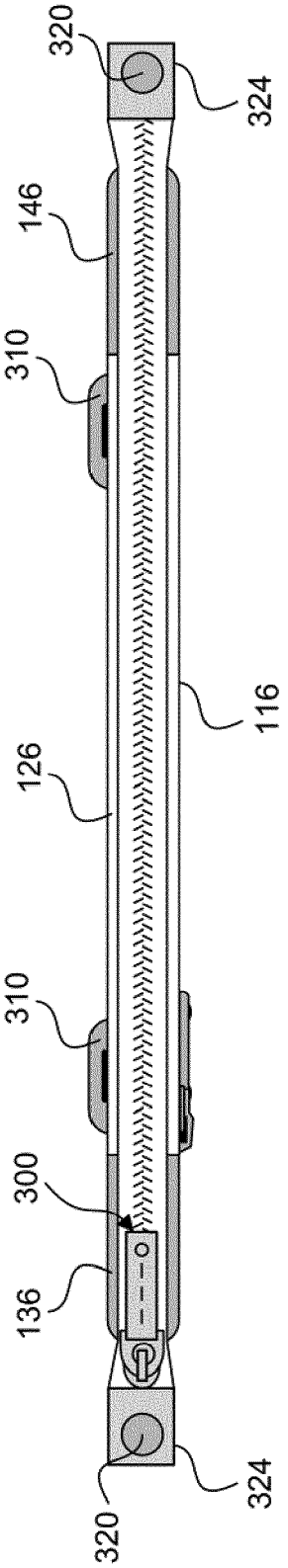


FIG. 3

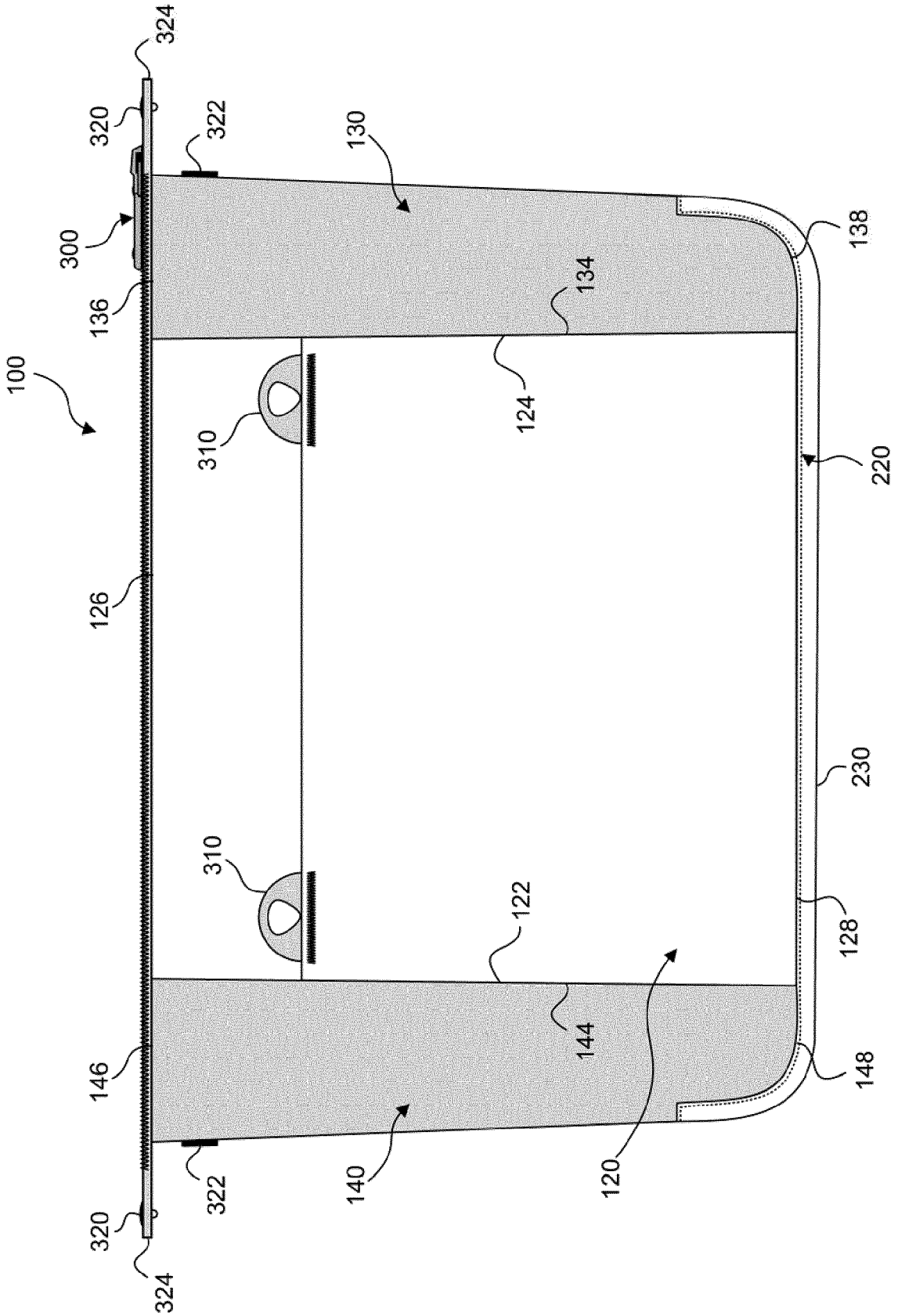

324
320
322
130
138
300
136
134
100
124
310
220
126
310
230
122
128
146
144
148
140
120
322
320
324

FIG. 4

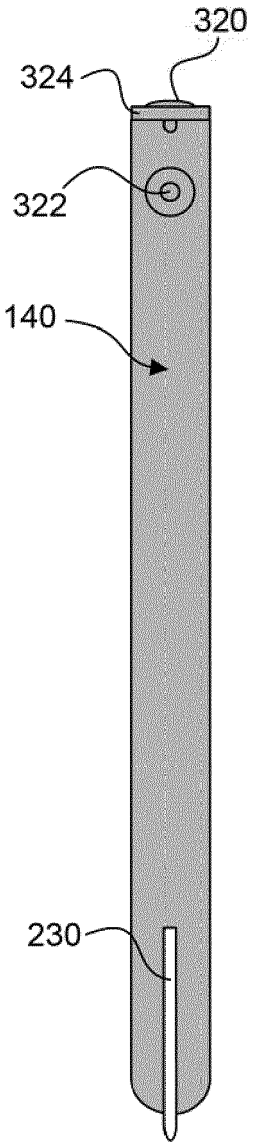


FIG. 5

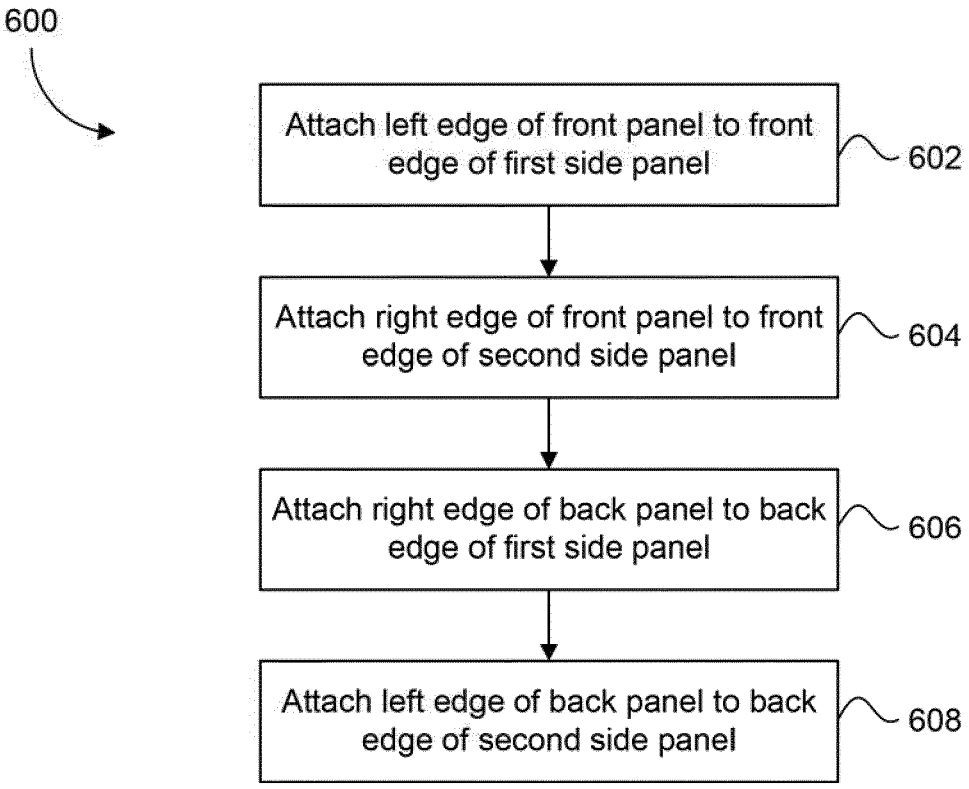

600
Attach left edge of front panel to front edge of first side panel
602
Attach right edge of front panel to front edge of second side panel
604
Attach right edge of back panel to back edge of first side panel
606
Attach left edge of back panel to back edge of second side panel
608

FIG. 6A

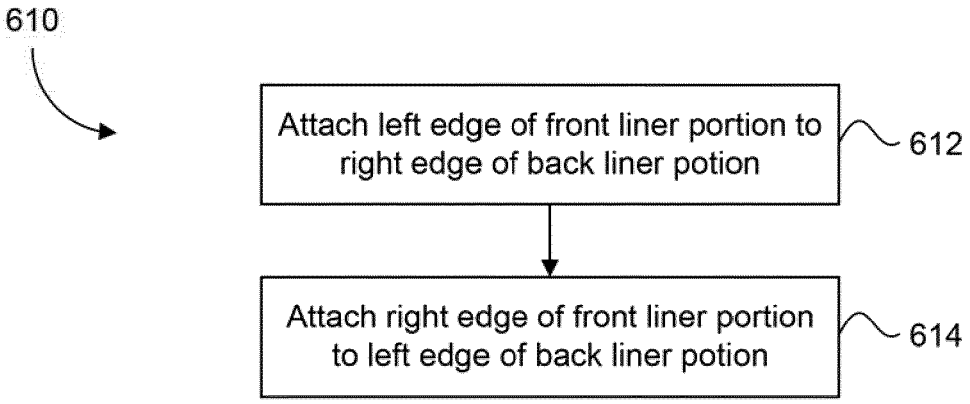

610
Attach left edge of front liner portion to right edge of back liner potion
612
Attach right edge of front liner portion to left edge of back liner potion
614

FIG. 6B

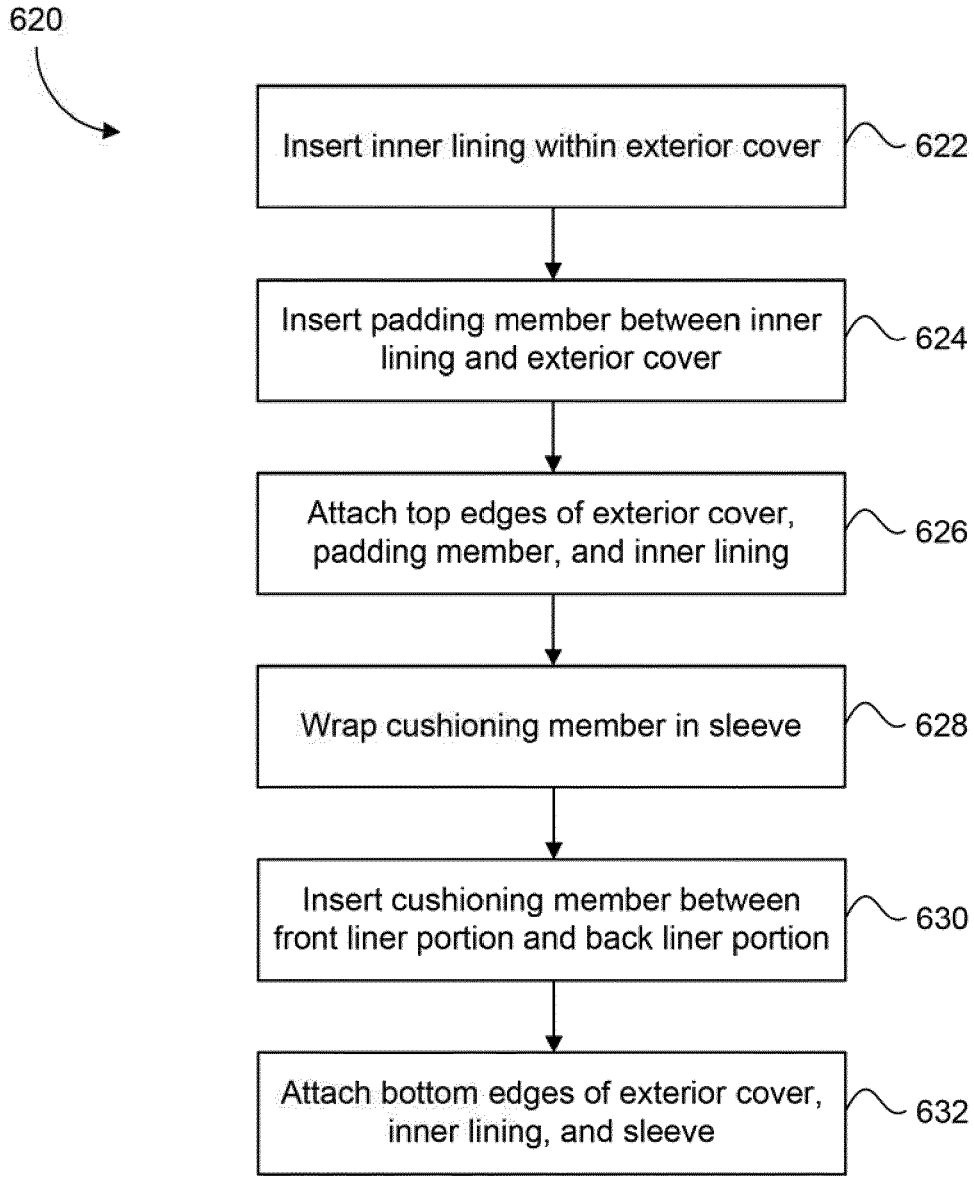

620
Insert inner lining within exterior cover
622
Insert padding member between inner lining and exterior cover
624
Attach top edges of exterior cover, padding member, and inner lining
626
Wrap cushioning member in sleeve
628
Insert cushioning member between front liner portion and back liner portion
630
Attach bottom edges of exterior cover, inner lining, and sleeve
632

FIG. 6C

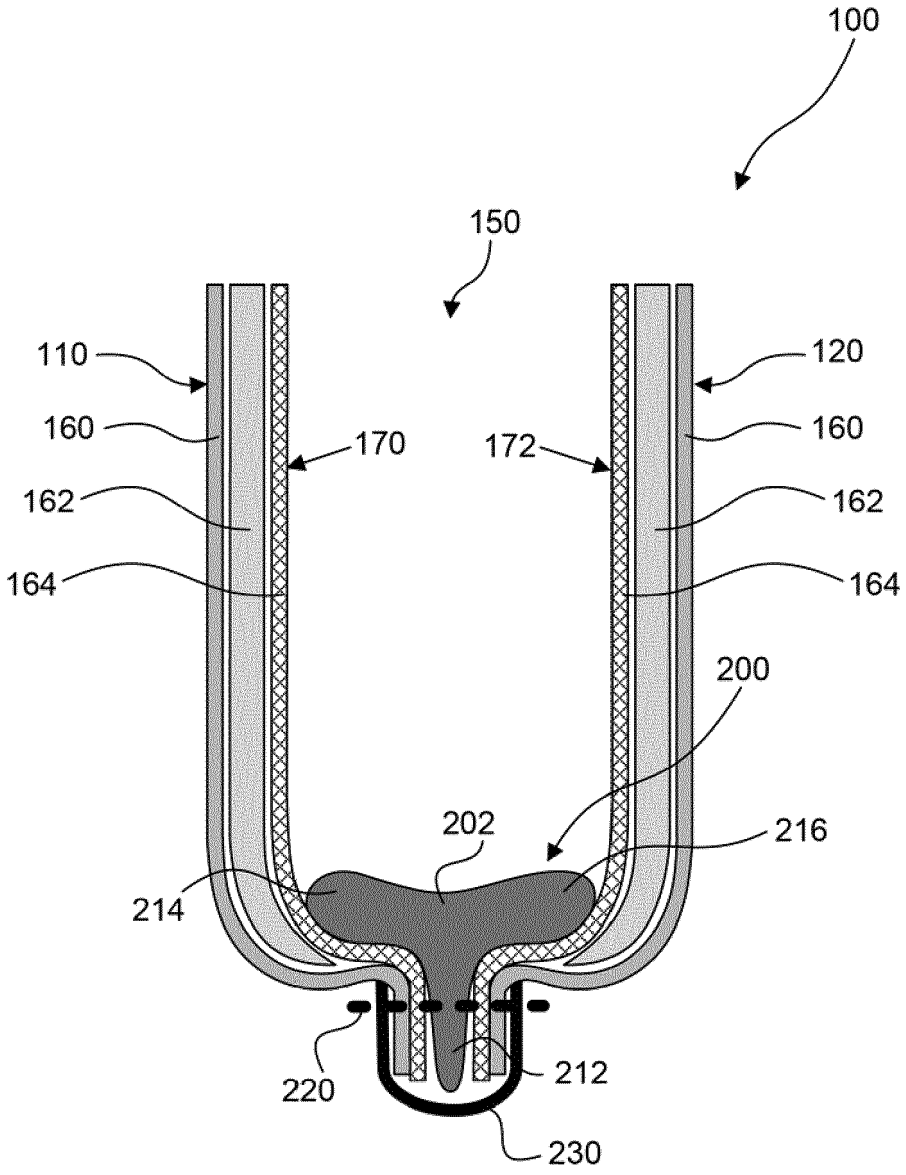
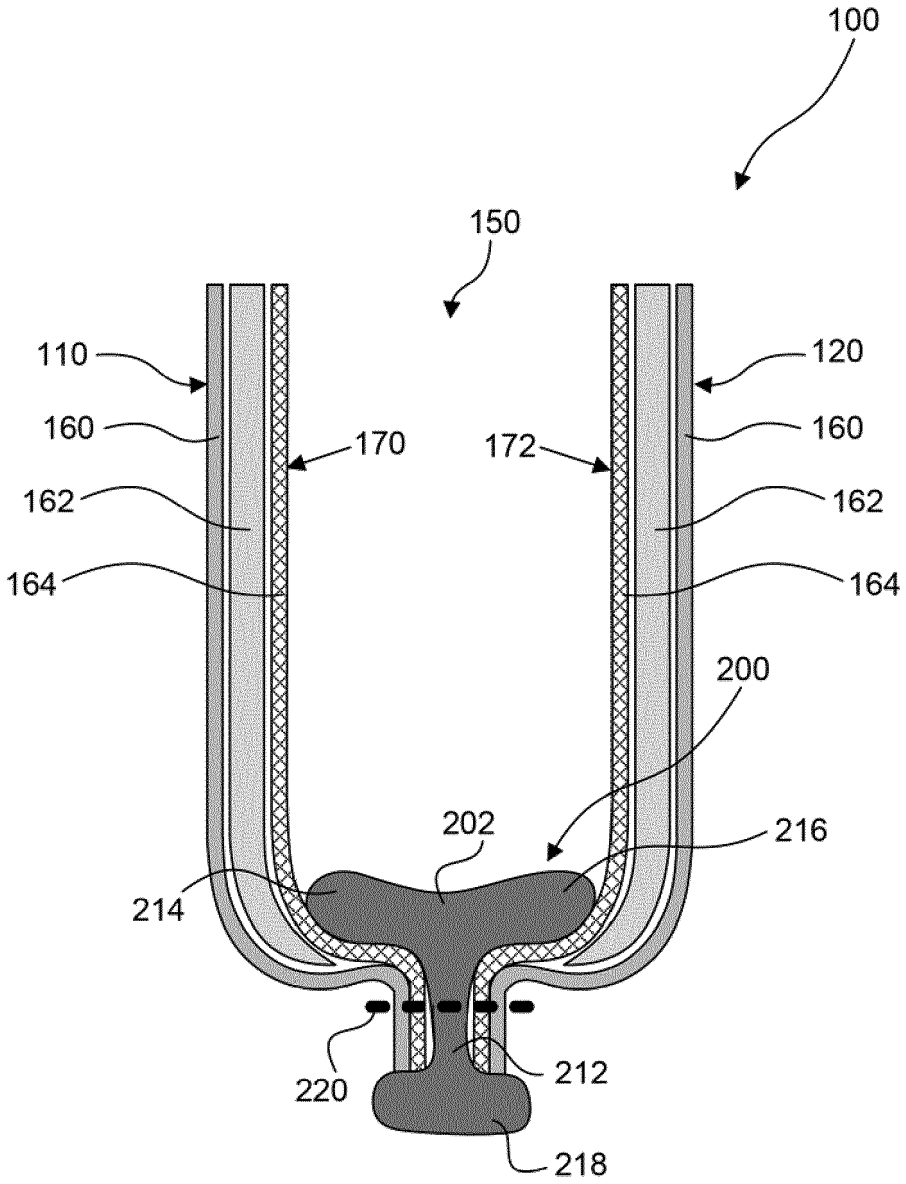

100
150
110
120
160
170
172
160
162
162
164
164
200
202
216
214
220
212
230

FIG. 7


100
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170
172
160
162
162
164
164
200
202
216
214
220
212
218

FIG. 8

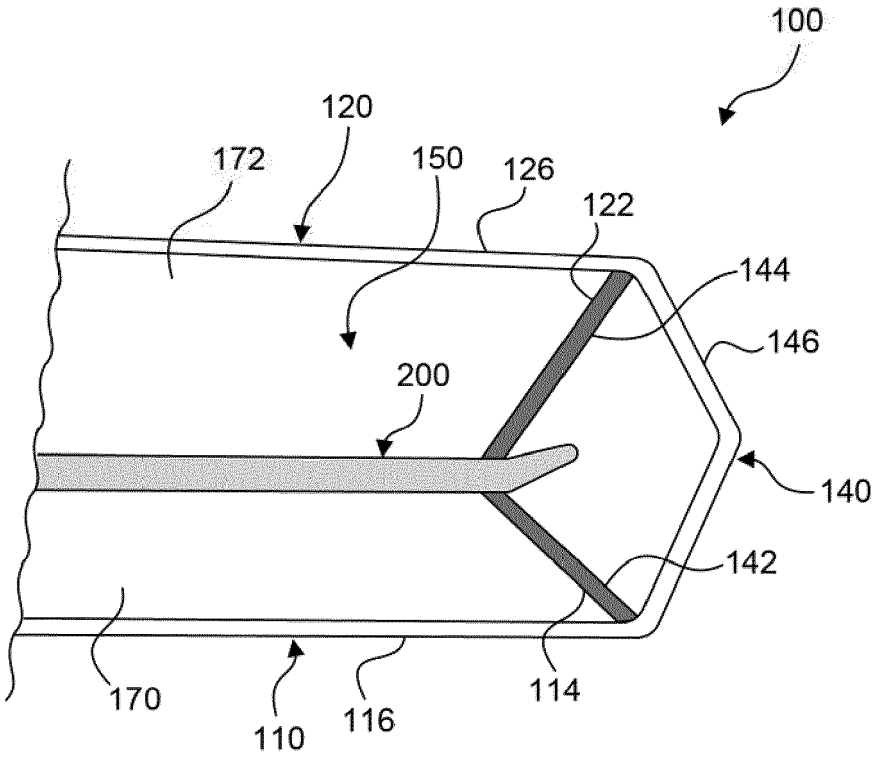

FIG. 9

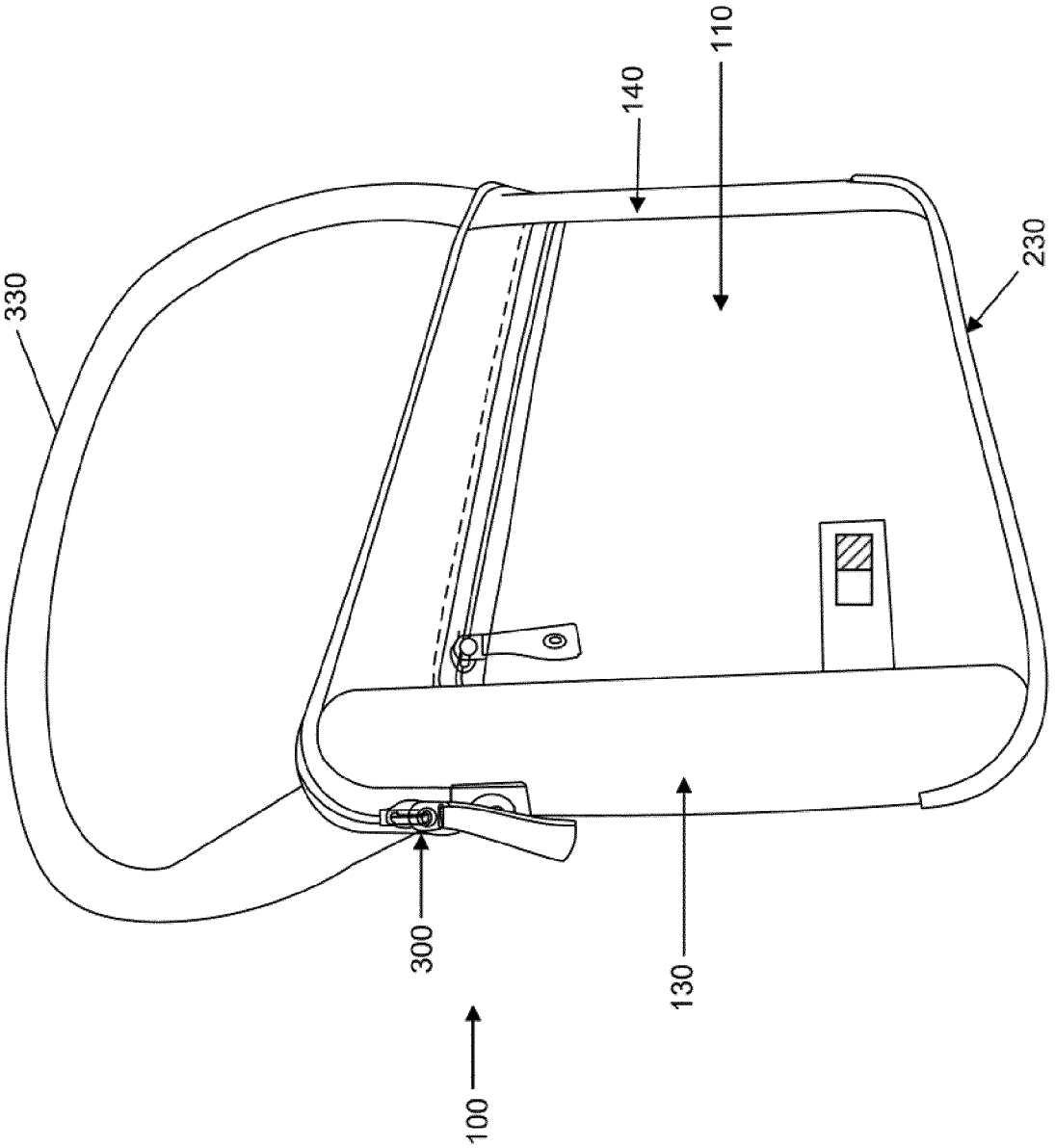

FIG. 10

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 15 19 8472

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 2002 219014 A (CAMEL KK) 6 August 2002 (2002-08-06) * paragraph [0034] * * figures 1-8 *	1-5,8-15	INV. A45C13/02 A45C11/00 A45C13/36
X	JP 2004 159683 A (HIRATSUKA AKIO) 10 June 2004 (2004-06-10) * paragraphs [0017], [0018] * * figures 1-5 *	1,4, 6-11,14	
X	US 5 160 001 A (MARCEAU STEPHEN M) 3 November 1992 (1992-11-03) * column 3, line 6 - column 5, line 11 * * figures 1-4 *	1,2,4-7, 9,10	
A	US 2002/125092 A1 (NYKOLUK CORY O ET AL) 12 September 2002 (2002-09-12) * the whole document *	1-15	

TECHNICAL FIELDS SEARCHED (IPC)

A45C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	10 May 2016	Witkowska-Piela, A

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10-05-2016

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		WO 02071888 A1	19-09-2002

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