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(71) Applicant: **SEALED AIR CORPORATION (US)**
[US/US]; 2415 Cascade Pointe Blvd, Charlotte, North Carolina 28208 (US).

(72) Inventors: **ROSEL, Stephan**; Krummacker 17, 36329 Romrod (DE). **PAYNE, Andrew**; 23 Shakespeare Road, Kettering Northamptonshire NN16 9QZ (GB). **OKULLA, Gregor**; Papenhausenstrasse 39, 58706 Menden (DE).

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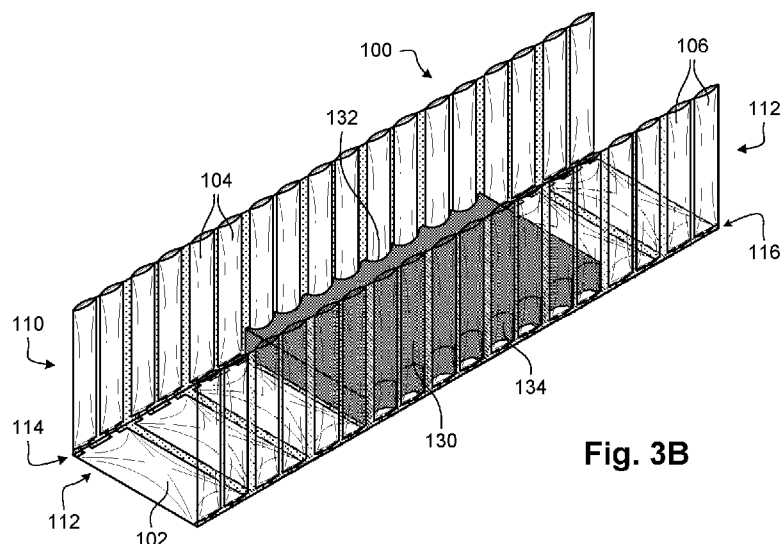


Fig. 3B

(57) Abstract: An insert (130) for a cushion system includes a resilient cushioning material. The insert (130) is usable with an inflated quilted cushion (100) that has two longitudinal seams (114, 116), an inner row (108) between the two longitudinal seams, a first outer row on a side of one longitudinal seam opposite the inner row, and a second outer row on a side of the other longitudinal seam opposite the inner row. The insert (130) has a transverse width that permits the insert to be located on the inflated quilted cushion between the outer rows when the inflated quilted cushion is in a folded configuration where the inflated quilted cushion (100) is folded at the two longitudinal seams. The insert (130) includes a first transverse side that engages the first outer row when the inflated quilted cushion is in the folded configuration to deter longitudinal movement of the insert with respect to the inflated quilted cushion.



PACKAGING WITH INFLATED QUILT AND RESILIENT INSERT

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SPECIFICATION

BACKGROUND

[0001] The present disclosure is in the technical field of packaging objects. More particularly, the present disclosure is directed to packaging that protects corners of the objects. Even more specifically, the present disclosure is directed to a cushioning system that includes an inflated quilted cushion and a resilient cushioning insert.

[0002] Consumers frequently purchase goods from mail-order or internet retailers, which package and ship the goods to the purchasing consumer via postal service or other carrier. Millions of such packages are shipped each day. Many of these packages include objects, such as books, clothing, electronic devices, household items, and the like. These objects are normally packaged in containers, such as a boxes or envelopes. To protect the objects during shipment, they are typically packaged with some form of protective dunnage that may be wrapped around the object or stuffed into the container to prevent movement of the object and to protect it from shock.

[0003] Many dunnage materials are known in the art. Inflatable structures are commonly used as cushions to package object, such as Inflatable Bubble Wrap® cushioning material that is available from Sealed Air Corporation. Such inflatable structures are typically used by wrapping the objects in the inflatable structures and placing the wrapped objects in a shipping container, or by simply placing one or more inflatable structures inside of a shipping container along with objects to be shipped. Paper cushioning are also commonly used as cushions to package objects by manipulating sheets of paper (e.g., rolls of paper or fan-folded stacks of paper)

into cushion pads that have a reduced width and an increased thickness compared to the original sheet. Such paper cushion pads are typically used by placing one or more paper cushion pads inside of a shipping container along with objects to be shipped.

5 SUMMARY

[0004] This summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This summary is not intended to identify key features of the claimed subject matter, nor is it intended to be used as an aid in determining the scope of the claimed subject matter.

10 [0005] In one embodiment a cushioning system includes an inflated quilted cushion and a resilient cushioning insert. The inflated quilted cushion has a first longitudinal seam, a second longitudinal seam, an inner row between the first and second longitudinal seams, a first outer row on a side of the first longitudinal seam opposite the inner row, and a second outer row on a side of the second longitudinal seam
15 opposite the inner row. The resilient cushioning insert is configured to be placed on the inflated quilted cushion over the inner row. The inflated quilted cushion is capable of being folded at the first and second longitudinal seams to be in a folded configuration. The resilient cushioning insert has a transverse width that permits the resilient cushioning insert to remain between the first and second outer rows when
20 the inflated quilted cushion is in the folded configuration. The resilient cushioning insert includes a first transverse side configured to engage with the first outer row when the inflated quilted cushion is in the folded configuration. Engagement of the first transverse side with the first outer row is arranged to deter longitudinal movement of the resilient cushioning insert with respect to the inflated quilted
25 cushion.

[0006] In one example, inflated cells of the first outer row form a first pattern when the inflated quilted cushion is in the folded configuration. In another example, the first transverse side has a first inverse pattern, and wherein the first inverse pattern

is substantially an inverse of the first pattern of the first outer row. In another example, the resilient cushioning insert includes a second transverse side configured to engage with the second outer row when the inflated quilted cushion is in the folded configuration, and engagement of the second transverse side with the second outer row is arranged to deter longitudinal movement of the resilient cushioning insert with respect to the inflated quilted cushion. In another example, inflated cells of the second outer row form a second pattern when the inflated quilted cushion is in the folded configuration. In another example, the second transverse side has a second inverse pattern and the second inverse pattern is substantially an inverse of the second pattern of the second outer row. In another example, the resilient cushioning insert includes a folding notch configured to permit portions of the resilient cushioning insert to fold around a front or a back of an object. In another example, the folding notch is located on the first transverse side of the resilient cushioning insert.

[0007] In another embodiment, an insert includes a resilient cushioning material. The insert is usable with an inflated quilted cushion that has a first longitudinal seam, a second longitudinal seam, an inner row between the first and second longitudinal seams, a first outer row on a side of the first longitudinal seam opposite the inner row, and a second outer row on a side of the second longitudinal seam opposite the inner row. The insert has a transverse width that permits the insert to be located on the inflated quilted cushion between the first and second outer rows when the inflated quilted cushion is in a folded configuration where the inflated quilted cushion is folded at the first and second longitudinal seams. The insert includes a first transverse side configured to engage with the first outer row when the inflated quilted cushion is in the folded configuration to deter longitudinal movement of the insert with respect to the inflated quilted cushion.

[0008] In one example, inflated cells of the first outer row form a first pattern when the inflated quilted cushion is in the folded configuration, the first transverse side has a first inverse pattern, and the first inverse pattern is substantially an inverse of the

first pattern of the first outer row. In another example, the insert includes a second transverse side configured to engage with the second outer row when the inflated quilted cushion is in the folded configuration, and engagement of the second transverse side with the second outer row is arranged to deter longitudinal movement of the insert with respect to the inflated quilted cushion. In another example, inflated cells of the second outer row form a second pattern when the inflated quilted cushion is in the folded configuration, wherein the second transverse side has a second inverse pattern, and the second inverse pattern is substantially an inverse of the second pattern of the second outer row. In another example, the insert includes a folding notch configured to permit portions of the insert to fold around a front or a back of an object. In another example, the folding notch is located on the first transverse side of the insert.

[0009] In another embodiment, a method includes placing an inflated quilted cushion across an opening of a container with a portion of an inner row of the inflated quilted cushion located over the opening. The inflated quilted cushion includes a first longitudinal seam and a second longitudinal seam with the inner row located between the first and second longitudinal seams. The inflated quilted cushion also includes a first outer row on a side of the first longitudinal seam opposite the inner row and a second outer row on a side of the second longitudinal seam opposite the inner row. The method further includes placing two lower resilient cushioning inserts on the inner row with at least a portion of each of the two lower resilient cushioning inserts located above the opening of the container, positioning an object over the inflated quilted cushion and the two lower resilient cushioning inserts with two sides of the object aligned with the two lower resilient cushioning inserts respectively, and folding at least a portion of the inflated quilted cushion into a folded configuration. In the folded configuration, the portion of the inflated quilted cushion is folded about the first and second longitudinal seams such that at least a portion of each of the first and second outer rows is at a non-straight angle with respect to the inner row. The method further includes feeding the object into the container. The feeding causes the two lower resilient cushioning inserts to fold so that first portions of the two lower resilient cushioning inserts remain below the object and second portions of the two

lower resilient cushioning inserts are located along the two sides of the object. Each of the two lower resilient cushioning inserts includes a first transverse side configured to engage with the first outer row when the portion of the first outer row is folded about the first longitudinal seam to deter longitudinal movement of the two lower resilient cushioning inserts with respect to the inflated quilted cushion.

[0010] In one example, the method further includes placing a first portion of each of two upper resilient cushioning inserts between one of the two sides of the object and the inner row such that a second portion of each of the two upper resilient cushioning inserts extends above the object. In another example, the method further includes folding the two upper resilient cushioning inserts so that the second portions of the two upper resilient cushioning inserts are located along a top of the object. In another example, the method further includes folding the inflated quilted cushion over the second portions of the two upper resilient cushioning inserts on the top of the object. In another example, the method further includes closing the opening of the container over the inflated quilted cushion that is over the second portions of the two upper resilient cushioning inserts on the top of the object. In another example, at least one of the two lower resilient cushioning inserts includes a folding notch configured to permit portions of the one of the two lower resilient cushioning inserts to fold around a front or a back of the object.

[0011] In another embodiment, a cushioning system includes a container, a plurality of resilient corner inserts, and a plurality of inflated quilted cushion segments. The container is configured to enclose an object. Each of the plurality of resilient corner inserts is configured to be braced between walls of a corner of the container and a corner of the object. Each of the plurality of inflated quilted cushion segments is configured to extend along a side of the object between two of the plurality of resilient corner inserts and is arranged with respect to the two of the plurality of resilient corner inserts, the container, and the object to deter movement of the inflated quilted cushion segment away from the side of the object.

[0012] In one example, each of the plurality of inflated quilted cushion segments includes an inner row of inflated cells configured to be located between the side of the object and the container. In another example, each of the plurality of inflated quilted cushion segments includes a first outer row on a side of a first longitudinal seam opposite the inner row and a second outer row on a side of a second longitudinal seam opposite the inner row. In another example, each of the plurality of inflated quilted cushion segments is configured to be folded about the first longitudinal seam and the second longitudinal seam such that the first outer row is located between a front of the object and the container and the second outer row is located between a back of the object and the container. In another example, the plurality of inflated quilted cushion segments includes a first inflated quilted cushion segment having a first quilt pattern and a second inflated quilted cushion segment having a second quilt pattern. In another example, the first inflated quilted cushion segment is located along a first side of the object, the second inflated quilted cushion segment is located along a second side of the object, and the second quilt pattern is configured to accommodate a feature of the second side of the object.

[0013] In another example, at least one of the plurality of resilient corner inserts includes an object contact surface, a first wing, and a second wing. In another example, the at least one of the plurality of resilient corner inserts is configured to be in a folded configuration when the at least one of the plurality of resilient corner inserts is braced between the walls of a corner of the container and a corner of the object. In another example, when the at least one of the plurality of resilient corner inserts is in the folded configuration, each of the first and second wings are substantially perpendicular to the object contact surface. In another example, each of the first and second wings includes a first side surface and a second side surface. In another example, the first and second side surfaces of each of the first and second wings are substantially perpendicular to each other. In another example, when the at least one of the plurality of resilient corner inserts is in the folded configuration and is braced between the walls of the corner of the container and the corner of the object, the first and second side surfaces of each of the first and

second wings are in contact with a first wall of the container and a second wall of the container, respectively.

[0014] In another example, the plurality of inflated quilted cushion segments are all of the same type of inflated quilted cushion. In another example, at least one of the plurality of inflated quilted cushions is a different type of inflated quilted cushion than another one of the plurality of inflated cushions. In another example, the at least one of the plurality of inflated quilted cushions is configured to accommodate a different thickness of one side of the object.

BRIEF DESCRIPTION OF THE DRAWING

[0015] The foregoing aspects and many of the attendant advantages of the disclosed subject matter will become more readily appreciated as the same become better understood by reference to the following detailed description, when taken in conjunction with the accompanying drawings, wherein:

[0016] Fig. 1 depicts an embodiment of an inflated quilted cushion, in accordance with the embodiments disclosed herein;

[0017] Figs. 2A and 2B depict top and perspective views, respectively, of the inflated quilted cushion shown in Fig. 1 in a folded configuration, in accordance with the embodiments disclosed herein;

[0018] Figs. 3A and 3B depict top and perspective views, respectively, of an embodiment of a cushioning system that includes the inflated quilted cushion shown in Fig. 1 and a resilient cushioning insert, in accordance with the embodiments disclosed herein;

[0019] Figs. 4A to 4D depict additional embodiments of resilient cushioning inserts 140, 150, 160, and 170 that can be used in place of the resilient cushioning

insert in the cushioning system shown in Figs. 3A and 3B, in accordance with the embodiments disclosed herein;

5 [0020] Figs. 5A and 5B depict top and side cross-sectional views, respectively, of a first instance of a method of positioning an object and a cushioning system with respect to each other, where the cushioning system includes an inflated quilted cushion and a resilient cushioning insert, in accordance with the embodiments disclosed herein;

10 [0021] Figs. 6A and 6B depict top and side cross-sectional views, respectively, of a second instance of the method of positioning the object and the cushioning system with respect to each other, in accordance with the embodiments disclosed herein;

[0022] Figs. 7A and 7B depict top and side cross-sectional views, respectively, of a third instance of the method of positioning the object and the cushioning system with respect to each other, in accordance with the embodiments disclosed herein;

15 [0023] Figs. 8A to 8H depict instances of one embodiment of a method of packaging an object using a cushioning system with an inflated quilted cushion and resilient cushioning inserts, in accordance with the embodiments disclosed herein;

[0024] Figs. 9A to 9F each depict a side and a top view of one instance of forming a cushioning system with resilient corner inserts and inflated quilted cushion segments, in accordance with the embodiments disclosed herein;

20 [0025] Figs. 10A and 10B each depict a side and a top view of one instance of forming a cushioning system with the resilient corner inserts and inflated quilted cushion segments having multiple types of quilt patterns, in accordance with the embodiments disclosed herein;

[0026] Figs. 11A to 11D depict a piece of resilient material in an unfolded state—as shown in front and perspective views, respectively, in Figs. 11A and 11B—and the piece of resilient material in a folded state that forms a resilient corner insert 524—as shown in perspective and side views, respectively, in Figs. 11C and 11D—in accordance with the embodiments disclosed herein;

[0027] Figs. 12A and 12B depict an embodiment of the resilient corner insert shown in Figs. 11C and 11D used in a cushioning system in combination with inflated quilted cushion segments, in accordance with the embodiments disclosed herein.

DETAILED DESCRIPTION

[0028] To protect objects during shipment, objects are typically packaged with some form of protective dunnage that may be wrapped around the object or stuffed into the container to prevent movement of the object and to protect it from shock. Those traditional methods wrapping objects in a form of dunnage or stuffing a form of dunnage into the area of a container around objects may provide sufficient protection for the objects under some conditions. However, they also suffer from a number of drawbacks. In one example, when paper cushion pads are stuffed into a container around an object in the container, the paper cushion pads typically do not prevent movement of the object within the container. During shipment, the object may slide or bounce within the package despite the presence of the cushion paper pads. In another example, when an object is wrapped in a sheet of inflated structures, the object may have a weight distribution that causes a different amount of weight to be exerted on various ones of the inflated structures. Such a weight distribution may cause popping or rupture of one or more of the inflated structures, resulting in reduced protection from the inflated structures.

[0029] In some cases, it may be advantageous to use two forms of dunnage to protect an object. Because different forms of dunnage may protect objects in different ways, the use of two different forms of dunnage can provide different types of protection to the same object. For example, a packager may wrap an object in a

sheet of inflated structures, place the wrapped object in a container, and then fill the void spaces in the container using paper cushion pads. In this example, the object benefits from the shock protection provided by the inflated structures and the object benefits from not moving as much within the container provided by the paper cushion pads.

[0030] One difficulty with the use to two forms of dunnage is ensuring proper placement of the two forms of dunnage with respect to the object. For example, a first material (e.g., a foam material) may be used to protect a fragile portion of an object and a second material (e.g., an inflated structure) may be used to overwrap the first material and the object. In this example, maintaining proper respective positioning of the first and second materials may be advantageous to providing adequate protection for the object. While adhesives may be used to maintain proper positioning of the first and second materials, the method of applying adhesives can be time-consuming, is subject to human error in application, and can cause improper function of the first and second materials.

[0031] The present disclosure describes embodiments of cushioning systems, components thereof, and methods of packaging objects using the cushioning systems. In particular, cushioning systems include a combination of an inflated quilted cushion and at least one resilient cushioning insert. The resilient cushioning insert includes a transverse side that is configured to engage an outer row of the inflated quilted cushion when the inflated quilted cushion is in a folded configuration. The engagement of the resilient cushioning insert with the inflated quilted cushion deters longitudinal movement of the resilient cushioning insert with respect to the inflated quilted cushion. This allows the cushioning system to be used without the need to adhere the inflated quilted cushion and the resilient cushioning insert to each other. The cushioning systems disclosed herein are capable of being used to protect any type of object, such as flat-screen televisions, computer monitors, picture or portrait frames, or any other object.

[0032] Fig. 1 depicts an embodiment of an inflated quilted cushion 100. In the depicted embodiment, the inflated quilted cushion 100 is an air cellular material. As used herein, the term “air cellular material” herein refers to cushioning material that includes air-filled cells, such as BUBBLE WRAP® air cushioning material sold by Sealed Air Corporation. In some embodiments, a first film or laminate is formed (e.g., thermoformed, embossed, calendared, or otherwise processed) to define a plurality of cells or cavities and a second film or laminate is adhered to the first film or laminate in order to close the cells or cavities. In other embodiments, two films or laminates are adhered or sealed to each other to form inflatable cells without either of the films or laminates being formed. Examples of air cellular materials are shown in U.S. Patent. Nos. 3,142,599, 3,208,898, 3,285,793, 3,508,992, 3,586,565, 3,616,155, 3,660,189, 4,181,548, 4,184,904, 4,415,398, 4,576,669, 4,579,516, 6,800,162, 6,982,113, 7,018,495, 7,165,375, 7,220,476, 7,223,461, 7,429,304, 7,721,781, and 7,950,433, and U.S. Published Patent Application Nos. 2014/0314978 and 2015/0075114, the disclosures of which are hereby incorporated by reference in their entirety.

[0033] The inflated quilted cushion 100 includes inflated cells 102, 104, and 106. In some embodiments, the inflated quilted cushion 100 is formed from two films that are sealed together in a pattern to define the inflated cells 102, 104, and 106. In some embodiments, the inflated quilted cushion 100 is formed from a single film that is longitudinally folded and the two sides of the film opposite the longitudinal fold are sealed together in a pattern to define the inflated cells 102, 104, and 106. In some embodiments, air is forced into the patterned film(s) and then the patterned film(s) are sealed to form the inflated cells 102, 104, and 106.

[0034] The inflated cells 102 form an inner row 108 that extends in a longitudinal direction of the inflated quilted cushion 100 (i.e., in the direction extending left and right in Fig. 1). The inflated cells 104 form an outer row 110 on one side of the inner row 108. The outer row 110 extends in a longitudinal direction of the inflated quilted cushion 100. The inflated cells 106 form an outer row 112 on another side of the

inner row 108. The outer row 112 extends in a longitudinal direction of the inflated quilted cushion 100.

[0035] The arrangement of the inflated cells 102, 104, and 106 in the inflated quilted cushion 100 forms a longitudinal seam 114 between the inner row 108 and the outer row 110 and a longitudinal seam 116 between the inner row 108 and the outer row 112. The inflated quilted cushion 100 can be folded at the longitudinal seam 114 and at the longitudinal seam 116 to be in a folded configuration, as will be discussed in greater detail below. In some embodiments, the inflated quilted cushion 100 can be folded at the longitudinal seam 114 so that the inner row 108 and the outer row 110 are substantially perpendicular to each other. Similarly, in some embodiments, the inflated quilted cushion 100 can be folded at the longitudinal seam 116 so that the inner row 108 and the outer row 112 are substantially perpendicular to each other.

[0036] In the depicted embodiment, some of the inflated cells 102, 104, and 106 are in fluid communication with each other in a transverse direction via the longitudinal seam 114 and the longitudinal seam 116. More specifically, the two of the inflated cells 104 are in fluid communication via the longitudinal seam 114 with one of the inflated cells 102, which is also in fluid communication via the longitudinal seam 116 with two of the inflated cells 106. This permits the inflated cells 102, 104, and 106 that are in fluid communication with each other to be inflated together.

[0037] The inflated quilted cushion 100 includes a transverse side 118 on an outer side of the outer row 110 and a transverse side 120 on an outer side of the outer row 112. In some cases, one of the transverse side 118 and the transverse side 120 is closed before inflation of the inflated cells 102, 104, and 106. For example, the closed one of the transverse sides 118 and 120 is sealed or is a longitudinal fold. In some cases, the other one of the transverse side 118 and the transverse side 120 is open before inflation of the inflated cells 102, 104, and 106. In some embodiments, air is forced into the inflated cells 102, 104, and 106 via the open one of the

transverse sides 118 and 120 and then the one of the transverse sides 118 and 120 is sealed to maintain the inflated cells 102, 104, and 106 in an inflated condition.

The operation of inflating and sealed can be performed by an inflation and sealing machine. Examples of inflation and sealing machines are described in U.S. Patent
5 No. 7,721,781 and U.S. Published Patent Application No. 2014/0314978, the contents of which are hereby incorporated by reference in their entirety. As can be seen in Fig. 1, the longitudinal seams 114 and 116 do not need to be fully sealed because the longitudinal seams 114 and 116 have passageways that permit the flow
10 of air in a transverse direction between some of the inflated cells 102, 104, and 106.

In other embodiments, the longitudinal seams 114 and 116 can be fully sealed to prevent the flow of air between the inner row 108, the outer row 110, and the outer row 112.

[0038] In the depicted embodiment, the inner row 108 is arranged as a single longitudinal row of the inflated cells 102 between the longitudinal seams 114 and
15 116. In other embodiments, the inner row 108 can include multiple rows of inflated cells between the longitudinal seams 114 and 116. In the depicted embodiment, the outer row 110 is arranged as a single longitudinal row of the inflated cells 104 on a side of the longitudinal seam 114 opposite the inner row 108. In other embodiments, the outer row 110 can include multiple rows of inflated cells one the side of the
20 longitudinal seam 114 opposite the inner row 108. In the depicted embodiment, the outer row 112 is arranged as a single longitudinal row of the inflated cells 106 on a side of the longitudinal seam 116 opposite the inner row 108. In other embodiments, the outer row 110 can include multiple rows of inflated cells one the side of the longitudinal seam 116 opposite the inner row 108. In the depicted embodiment, the
25 outer rows 110 and 112 include two of the inflated cells 104 and 106 for every one of the inflated cells 102 in the inner row 108. In other embodiments, the outer rows 110 and 112 include any numbers of inflated cells 104 and 106 for any number of the inflated cells 102 in the inner row 108.

[0039] As noted above, the inflated quilted cushion 100 can be folded at the longitudinal seam 114 and at the longitudinal seam 116 to be in a folded configuration. Depicted in Fig. 2A and 2B are top and perspective views, respectively, of the inflated quilted cushion 100 in a folded configuration. In the depicted embodiment, the inflated quilted cushion 100 has been folded at the longitudinal seam 114 so that the inner row 108 and the outer row 110 are substantially perpendicular to each other. Similarly, in the depicted embodiment, the inflated quilted cushion 100 has been folded at the longitudinal seam 116 so that the inner row 108 and the outer row 112 are substantially perpendicular to each other. In this arrangement, the inflated quilted cushion 100 is U-shaped with the inner row 108 forming a bottom of the U-shaped inflated quilted cushion 100 and the outer rows 110 and 112 forming sides of the U-shaped inflated quilted cushion 100.

[0040] In the folded configuration shown in Figs. 2A and 2B, the inflated quilted cushion 100 can be used to cushion an object on three sides of the object. In one example, the inflated quilted cushion 100 can be located on a flat-screen television with the inner row 108 parallel to a side of the television and each of the outer rows 110 and 112 extending across portions of the front and back of the television. The inflated quilted cushion 100 can also be folded at corners of the television so that the inner row 108 extends parallel to two adjacent sides of the television (e.g., the bottom of the television and the left side of the television, the left side of the television and the top of the television, etc.). In other examples, the inflated quilted cushion 100 can be similarly used to protect computer monitors, picture or portrait frames, or any other object.

[0041] One difficulty with the use of the inflated quilted cushion 100 to cushion an object is that the weight of the object can rupture one of the inflated cells 102, 104, and 106 of the inflated quilted cushion 100. This is particularly an issue where the inflated quilted cushion 100 is bent around a corner of the object because the pressure from the corner of the object can create greater pressure on the inflated cells 102, 104, and 106. To address this issue, a resilient cushioning insert can be

used in combination with the inflated quilted cushion 100 to provide added cushioning for the object and to reduce the possibility of damage to the inflated cells 102, 104, and 106 of the inflated quilted cushion 100.

[0042] Depicted in Figs. 3A and 3B are top and perspective views, respectively, of an embodiment of a cushioning system that includes the inflated quilted cushion 100 and a resilient cushioning insert 130. In some embodiments, the resilient cushioning insert is made from a resilient material. In some embodiments, the resilient cushioning insert 130 is made from a polymer foam material. Examples, of foam materials, foam structures, and foam processing can be found in C. P. Park, "Polyolefin Foam", Chapter 9, Handbook of Polymer Foams and Technology, edited by D. Klempner and K. C. Frisch, Hanser Publishers, Munich, Vienna, New York, Barcelona (1991), the contents of which are hereby incorporated by reference in their entirety. Such foams may be made by conventional extrusion foaming processes, such as by heating an ethylenic polymer material to form a plasticized or melt polymer material, incorporating therein a blowing agent to form a foamable gel, and extruding the gel through a die to form the foam product. Examples of foam materials are described in U.S. Patent Nos. 5,348,984, 5,462,974, 5,667,728, 6,720,363, and 7,144,925, the contents of which are hereby incorporated by reference in their entirety. In some embodiments, the resilient cushioning insert 130 is made from another resilient material, such as rubber or other elastomeric materials. Elastomeric materials may include one or more of polyisoprene, polybutadiene, chloroprene rubber (e.g., polychloroprene, Neoprene, Baypren, etc.), butyl rubber, halogenated butyl rubber, styrene-butadiene rubber, nitrile rubber, hydrogenated nitrile rubbers, ethylene propylene rubber, ethylene propylene diene rubber, epichlorohydrin rubber, polyacrylic rubber, silicone rubber, fluorosilicone rubber, fluoroelastomer, perfluoroelastomer, polyether block amide, chlorosulfonated polyethylene, thermoplastic elastomers, polysulfide rubber, elastolefin, or any combination thereof.

[0043] As shown in Figs. 3A and 3B, the resilient cushioning insert 130 can be placed on the inflated quilted cushion 100 over the inner row 108. The resilient cushioning insert 130 has a transverse side 132 and a transverse side 134. The resilient cushioning insert 130 has a transverse width (i.e. the distance between the transverse sides 132 and 134) that permits the resilient cushioning insert 130 to remain between the outer rows 110 and 112 when the inflated quilted cushion 100 is in the folded configuration.

[0044] In the depicted embodiment, the transverse sides 132 and 134 are configured to engage with the outer rows 110 and 112, respectively, when the inflated quilted cushion 100 is in the folded configuration. The engagement of the transverse side 132 with the outer row 110 is arranged to deter longitudinal movement of the resilient cushioning insert 130 with respect to the inflated quilted cushion 100. In the particular depicted embodiment, the inflated cells 104 of the outer row 110 form a pattern when the inflated quilted cushion 100 is in the folded configuration. The transverse side 132 has an inverse pattern that is substantially an inverse of the pattern of the inflated cells 104 of the outer row 110. Similarly, the engagement of the transverse side 134 with the outer row 112 is arranged to deter longitudinal movement of the resilient cushioning insert 130 with respect to the inflated quilted cushion 100. In the particular depicted embodiment, the inflated cells 106 of the outer row 112 form a pattern when the inflated quilted cushion 100 is in the folded configuration. The transverse side 134 has an inverse pattern that is substantially an inverse of the pattern of the inflated cells 106 of the outer row 112.

[0045] While the resilient cushioning insert 130 depicted in Figs. 3A and 3B has two transverse sides 132 and 134 that engage the two outer rows 110 and 112, other embodiments of resilient cushioning inserts may have only one transverse side that engages only one of the two outer rows 110 and 112. For example, if resilient cushioning insert 130 had the transverse side 132 with the pattern depicted in Figs. 3A and 3B and the transverse side 134 was a straight edge, only the transverse side 132 would engage the outer row 110. When embodiments resilient cushioning

inserts have only one transverse side that engages one of the two outer rows 110 and 112, the engagement of the one transverse side with the one of the two outer rows 110 and 112 can still deter longitudinal movement of the resilient cushioning insert 130 with respect to the inflated quilted cushion 100.

5 **[0046]** One benefit of the resilient cushioning insert 130 having at least one transverse side that deters longitudinal movement of the resilient cushioning insert 130 with respect to the inflated quilted cushion 100 is that system of the inflated quilted cushion 100 and the resilient cushioning insert 130 functions without the inflated quilted cushion 100 and the resilient cushioning insert 130 being adhered to
10 each other. Adhering the inflated quilted cushion 100 and the resilient cushioning insert 130 can be problematic because any bending of the adhered inflated quilted cushion 100 and resilient cushioning insert 130 can cause distortions of the inflated quilted cushion 100 and/or the resilient cushioning insert 130 because they bend at different radii. In addition, adhering the inflated quilted cushion 100 and the resilient
15 cushioning insert 130 is time-consuming and labor-intensive compared to merely placing the resilient cushioning insert 130 on the inflated quilted cushion 100 with the inverse pattern of at least one of the transverse sides 132 and 134 engaged with the pattern of at least one of the two outer rows 110 and 112.

20 **[0047]** The embodiment of the resilient cushioning insert 130 is one example of resilient cushioning inserts that can be used in the cushioning systems disclosed herein. Depicted in Figs. 4A to 4D are additional embodiments of resilient cushioning inserts 140, 150, 160, and 170 that can be used in place of the resilient cushioning insert 130 in the cushioning system depicted in Figs. 3A and 3B. In some
25 embodiments, each of the resilient cushioning inserts 140, 150, 160, and 170 is made from a resilient material, such as a foam material or an elastomeric material. Each of the resilient cushioning inserts 140, 150, 160, and 170 is usable with an inflated quilted cushion, such as the inflated quilted cushion 100.

[0048] The resilient cushioning insert 140 is depicted in Fig. 4A. The resilient cushioning insert 140 has a transverse side 142 that is not configured to engage with any outer row of an inflated quilted cushion. The resilient cushioning insert 140 has a transverse side 144 that is configured to engage with an outer row of an inflated quilted cushion in a folded configuration. The engagement of the transverse side 144 with the outer row of the inflated quilted cushion deters longitudinal movement of the resilient cushioning insert 140 with respect to the inflated quilted cushion.

[0049] The resilient cushioning insert 150 is depicted in Fig. 4B. The resilient cushioning insert 150 has a transverse side 152 that is configured to engage with a first outer row of an inflated quilted cushion in a folded configuration. The engagement of the transverse side 152 with the first outer row of the inflated quilted cushion deters longitudinal movement of the resilient cushioning insert 150 with respect to the inflated quilted cushion. The resilient cushioning insert 150 also has a transverse side 154 that is configured to engage with a second outer row of the inflated quilted cushion in the folded configuration. The engagement of the transverse side 154 with the second outer row of the inflated quilted cushion deters longitudinal movement of the resilient cushioning insert 150 with respect to the inflated quilted cushion. The resilient cushioning insert 150 also has a folding notch 156. As will be discussed in greater detail below, the folding notch 156 is capable of being used to permit portions of the resilient cushioning insert 150 to fold around a front or a back of an object. In the depicted embodiment, the folding notch 156 is located on the transverse side 152 of the resilient cushioning insert 150 that engages the first outer row of the inflated quilted cushion.

[0050] The resilient cushioning insert 160 is depicted in Fig. 4C. The resilient cushioning insert 160 has a transverse side 162 that is not configured to engage with any outer row of an inflated quilted cushion. The resilient cushioning insert 160 has a transverse side 164 that is configured to engage with an outer row of an inflated quilted cushion in a folded configuration. The engagement of the transverse side 164 with the outer row of the inflated quilted cushion deters longitudinal movement of

the resilient cushioning insert 160 with respect to the inflated quilted cushion. The resilient cushioning insert 160 also has a folding notch 166. As will be discussed in greater detail below, the folding notch 166 is capable of being used to permit portions of the resilient cushioning insert 160 to fold around a front or a back of an object. In the depicted embodiment, the folding notch 166 is located on the transverse side 164 of the resilient cushioning insert 160 that engages the outer row of the inflated quilted cushion.

[0051] The resilient cushioning insert 170 is depicted in Fig. 4D. The resilient cushioning insert 170 has a transverse side 172 that is not configured to engage with any outer row of an inflated quilted cushion. The resilient cushioning insert 170 has a transverse side 174 that is configured to engage with an outer row of an inflated quilted cushion in a folded configuration. The engagement of the transverse side 174 with the outer row of the inflated quilted cushion deters longitudinal movement of the resilient cushioning insert 170 with respect to the inflated quilted cushion. The resilient cushioning insert 170 also has a folding notch 176. As will be discussed in greater detail below, the folding notch 176 is capable of being used to permit portions of the resilient cushioning insert 170 to fold around a front or a back of an object. In the depicted embodiment, the folding notch 176 is located on the transverse side 172 that does not engage any outer row of the inflated quilted cushion.

[0052] As discussed above, a cushioning system that includes an inflated quilted cushion and a resilient cushioning insert can be used to package an object. In particular, the resilient cushioning insert can be used at a corner of the object to further cushion the corner and to reduce the possibility of the corner of the object causing inflated cells of the inflated quilted cushion to pop. One embodiment of a method of positioning an object and a cushioning system that includes an inflated quilted cushion and a resilient cushioning insert with respect to each other is depicted in Figs. 5A, 5B, 6A, 6B, 7A, and 7B. More specifically, Figs. 5A and 5B depict top and side cross-sectional views, respectively, of a first instance of the

method of positioning an object 250 and a cushioning system that includes an inflated quilted cushion 200 and a resilient cushioning insert 230 with respect to each other; Figs. 6A and 6B depict top and side cross-sectional views, respectively, of a second instance of the method of positioning the object 250 and the cushioning system with respect to each other; and Figs. 7A and 7B depict top and side cross-sectional views, respectively, of a third instance of the method of positioning the object 250 and the cushioning system with respect to each other.

[0053] In the first instance depicted in Figs. 5A and 5B, the inflated quilted cushion 200 is in a folded configuration. The inflated quilted cushion 200 includes inflated cells 202, 204, and 206. The inflated cells 202 form an inner row 208 that extends in a longitudinal direction of the inflated quilted cushion 200. The inflated cells 204 form an outer row 210 on one side of the inner row 208. The outer row 210 extends in a longitudinal direction of the inflated quilted cushion 200. The inflated cells 206 form an outer row 212 on another side of the inner row 208. The outer row 212 extends in a longitudinal direction of the inflated quilted cushion 200. The arrangement of the inflated cells 202, 204, and 206 in the inflated quilted cushion 200 forms a longitudinal seam 214 between the inner row 208 and the outer row 210 and a longitudinal seam 216 between the inner row 208 and the outer row 212. In the depicted embodiment, the inflated quilted cushion 200 has been folded at the longitudinal seam 214 so that the inner row 208 and the outer row 210 are substantially perpendicular to each other. Similarly, in the depicted embodiment, the inflated quilted cushion 200 has been folded at the longitudinal seam 216 so that the inner row 208 and the outer row 212 are substantially perpendicular to each other.

[0054] The resilient cushioning insert 230 has been placed on the inflated quilted cushion 200 over the inner row 208. The resilient cushioning insert 230 includes a transverse side 232 that is configured to engage with the outer row 210 when the inflated quilted cushion 200 is in the folded configuration. The engagement of the transverse side 232 with the outer row 210 is arranged to deter longitudinal movement of the resilient cushioning insert 230 with respect to the inflated quilted

cushion 200. The resilient cushioning insert 230 also includes a transverse side 234 that is configured to engage with the outer row 212 when the inflated quilted cushion 200 is in the folded configuration. The engagement of the transverse side 234 with the outer row 212 is arranged to deter longitudinal movement of the resilient cushioning insert 230 with respect to the inflated quilted cushion 200. The resilient cushioning insert 230 includes a folding notch 236 that permits portions of the resilient cushioning insert 230 to fold around a front or a back of an object. The folding notch 236 is located on the transverse side 232 of the resilient cushioning insert 230.

[0055] In the second instance depicted in Figs. 6A and 6B, the object 250 has been posited over the inflated quilted cushion 200 and the resilient cushioning insert 230. The inflated quilted cushion 200 and the resilient cushioning insert 230 are located in the same position as they were in Figs. 5A and 5B. In the depicted embodiment, the object 250 is aligned with the resilient cushioning insert 230 such that a corner 252 of the object is approximately aligned with the folding notch 236. In other embodiments, any portion of the object 250 may be aligned with any other portion of the resilient cushioning insert 230. As can be seen in Fig. 6B, the bottom of the object 250 is located on a portion of the top surface of the resilient cushioning insert 230 and a portion of the inflated quilted cushion 200 extends under the object 250.

[0056] In the third instance depicted in Figs. 7A and 7B, the inflated quilted cushion 200 and the resilient cushioning insert 230 have been folded about the corner 252 of the object 250. In this orientation, a portion of the inflated quilted cushion 200 and a portion of the resilient cushioning insert 230 remain below the object 250, and a portion of the inflated quilted cushion 200 and a portion of the resilient cushioning insert 230 are located along the left side of the object 250. As can be seen in Fig. 7B, the resilient cushioning insert 230 provides protection for the corner 252 of the object 250. In some embodiments, the resilient cushioning insert 230 is capable of distributing any force imparted by the object 250 at the corner 252 (e.g., force from the weight of the object 250) over a number of the inflated cells 202.

This distribution of force reduces the possibility of any one of the inflated cells 202 receiving sufficient force to pop the one of the inflated cells 202.

[0057] As noted above, the resilient cushioning insert 230 includes a folding notch 236 that is located on the transverse side 232 of the resilient cushioning insert 230.

5 The folding notch 236 permits portions of the resilient cushioning insert 230 to fold around a front or a back of the object 250. In the instance shown in Fig. 7A and 7B, portions of the resilient cushioning insert 230 have been folded around the back of the object 250. The folding notch 236 permits folding of the portions of the resilient cushioning insert 230 to fold around the back of the object 250 without causing any
10 rippling or other distortion of the resilient cushioning insert 230. The ability of portions of the folding notch 236 to fold around the front or the back of the object 250 provides additional protection for the front or back of the object.

[0058] The embodiments described herein of cushioning systems with inflated quilted cushions and resilient cushioning inserts can be used to package objects. One
15 embodiment of a method of packaging an object using a cushioning system with an inflated quilted cushion and resilient cushioning inserts is depicted in Figs. 8A to 8H. More specifically, the each of Figs. 8A to 8H depicts a front view of one instance of using a cushioning system that includes an inflated quilted cushion 300 and lower resilient cushioning inserts 330₁ and 330₂ to package an object 350 in a container
20 360. The inflated quilted cushion 300 includes inflated cells that form an inner row 308, an outer row 310, and an outer row 312 that extend in a longitudinal direction of the inflated quilted cushion 300. The outer row 310 is on one side of the inner row 308 and the outer row 312 is on another side of the inner row 308. In Fig. 8A, the outer row 310 is located behind the inner row 308 and the outer row 312 is
25 located in front of the inner row 308. The inflated quilted cushion 300 includes a longitudinal seam 314 between the inner row 308 and the outer row 310 and a longitudinal seam 316 between the inner row 308 and the outer row 312.

[0059] In Fig. 8A, the inflated quilted cushion 300 has been placed across an opening 362 of the container 360. In some embodiments, the container 360 is a box, such as a cardboard box, with flaps at the opening 362 that can be opened or closed. In the embodiment shown in Fig. 8A, the container 360 has flaps at the opening 362 that are open. In some embodiments, the inflated quilted cushion 300 is placed across the opening 362 of the container 360 with a portion of the inner row 308 aligned over the opening 362. The container 360 is depicted in dashed lines in Figs. 8A to 8H to indicate that the viewer can see through the sides of the container 360 in the figures. However, in some embodiments, the sides of the container 360 are opaque, such as in the case of a cardboard box, and a viewer cannot see through the sides of the container 360.

[0060] As is also visible in Fig. 8A, the lower resilient cushioning inserts 330₁ and 330₂ have been placed on the inner row 308 of inflated cells of the inflated quilted cushion 300. At least a portion of each of the lower resilient cushioning inserts 330₁ and 330₂ is located over the opening 362 of the container 360. The object 350 has also been positioned over the inflated quilted cushion 300 and the two lower resilient cushioning inserts 330₁ and 330₂. In the depicted embodiment, the left and right sides of the object 350 are aligned with the two lower resilient cushioning inserts 330₁ and 330₂, respectively. In the depicted embodiment, each of the two lower corners of the object 350 is positioned near a middle of one of the two lower resilient cushioning inserts 330₁ and 330₂.

[0061] At the instance depicted in Fig. 8B, the inflated quilted cushion 300 has been folded into a folded configuration. In the folded configuration, a portion of the inflated quilted cushion 300 is folded about the longitudinal seam 314 and the longitudinal seam 316 such that at least a portion of each of the outer row 310 and the outer row 312 is at a non-straight angle with respect to the inner row 308. In the depicted embodiment, the entire longitudinal length of the inflated quilted cushion 300 is in the folded configuration. In the depicted embodiment, the outer row 310 extends upward behind the back of the object 350 and the outer row 312 extends upward in front of

the object 350. In some embodiments, each of the outer row 310 and the outer row 312 is substantially perpendicular to the inner row 308 when the inflated quilted cushion 300 is in the folded configuration. In some embodiments, the inflated quilted cushion 300 is folded into the folded configuration by a manual process (e.g., a user holds the inflated quilted cushion 300 in the folded configuration by hand). In other embodiments, the inflated quilted cushion 300 is folded into the folded configuration by the container 360 as the object 350 is fed into the container 360.

[0062] Each of the lower resilient cushioning inserts 330₁ and 330₂ includes a transverse side that engages with one of the outer rows 310 and 312 when the inflated quilted cushion 300 is in the folded configuration. The engagement of the lower resilient cushioning inserts 330₁ and 330₂ with one of the outer rows 310 and 312 deters longitudinal movement of the lower resilient cushioning inserts 330₁ and 330₂ with respect to the inflated quilted cushion 300. This engagement permits the lower resilient cushioning inserts 330₁ and 330₂ to be used with the inflated quilted cushion 300 without adhering the lower resilient cushioning inserts 330₁ and 330₂ to the inflated quilted cushion 300. In some embodiments, each of the lower resilient cushioning inserts 330₁ and 330₂ includes two transverse sides that engage with both of the outer rows 310 and 312 when the inflated quilted cushion 300 is in the folded configuration.

[0063] At the instance depicted in Fig. 8C, the object 350 has been fed into the container 360 so that the object 350 is partially inside the container 360. At the instance depicted in Fig. 8D, the object 350 has been fed into the container 360 so that the object 350 is fully inside the container 360. The feeding of the object 350 into the container 360 causes the lower resilient cushioning inserts 330₁ and 330₂ to fold so that each of the lower resilient cushioning inserts 330₁ and 330₂ includes one portion that remains below the object 350 and another portion that is located along one of the left and right sides of the object 350. The feeding of the object 350 into the container 360 also causes the inflated quilted cushion 300 to fold around the lower corners of the object 350 so that a portion of the inner row 308 remains below

the object 350 and portions of the inner row 308 extend upward along the left and right sides of the object 350.

[0064] At the instance depicted in Fig. 8E, upper resilient cushioning inserts 330₃ and 330₄ have been placed in the container 360. In the depicted embodiment, a portion of each of the upper resilient cushioning inserts 330₃ and 330₄ has been placed between one of the left and right sides of the object 350 and the inner row 308 of the inflated quilted cushion 300. Another portion of each of the upper resilient cushioning inserts 330₃ and 330₄ extends upward above the object 350. In some embodiments, each of upper resilient cushioning inserts 330₃ and 330₄ includes one or two transverse sides that engage with one or both of the outer rows 310 and 312 when the inflated quilted cushion 300 is in the folded configuration. The engagement of the upper resilient cushioning inserts 330₃ and 330₄ with one or both of the outer rows 310 and 312 deters longitudinal movement of the upper resilient cushioning inserts 330₃ and 330₄ with respect to the inflated quilted cushion 300. This engagement permits the upper resilient cushioning inserts 330₃ and 330₄ to be used with the inflated quilted cushion 300 without adhering the upper resilient cushioning inserts 330₃ and 330₄ to the inflated quilted cushion 300.

[0065] At the instance depicted in Fig. 8F, the upper resilient cushioning inserts 330₃ and 330₄ have been folded around the upper corners of the object 350. A portion of the upper resilient cushioning insert 330₃ remains located between the left side of the object 350 and the inner row 308, while the other portion of the upper resilient cushioning insert 330₃ has been folded down on the top of the object 350. A portion of the upper resilient cushioning insert 330₄ remains located between the right side of the object 350 and the inner row 308, while the other portion of the upper resilient cushioning insert 330₄ has been folded down on the top of the object 350.

[0066] Although not depicted in Figs. 8A to 8H, any of the lower resilient cushioning inserts 330₁ and 330₂ and the upper resilient cushioning inserts 330₃ and 330₄ may include at least one folding notch. The folding notch may be located on a transverse

side of one of the resilient cushioning inserts to permit portions of the resilient cushioning insert to fold around a front or a back of the object 350.

[0067] At the instance depicted in Fig. 8G, the inflated quilted cushion 300 has been folded over the portions of the upper resilient cushioning inserts 330₃ and 330₄ that are on the top of the object 350. In the depicted embodiment, the overall longitudinal length of the inflated quilted cushion 300 has been selected so that the inflated quilted cushion 300 covers a majority of the top of the object 350 without overlapping each other. With the inflated quilted cushion 300 folded down on the portions of the upper resilient cushioning inserts 330₃ and 330₄ that are on the top of the object 350, the opening 362 of the container 360 can be closed. At the instance depicted in Fig. 8H, the opening 362 of the container 360 has been closed.

[0068] As can be seen in Fig. 8H, the result of the method depicted in Figs. 8A to 8H is that the object 350 is packaged in the container 360 with the top, bottom, left, and right sides of the object 350 covered by the inflated quilted cushion 300.

Additionally, each of the corners of the object 350 is further protected by one of the lower resilient cushioning inserts 330₁ and 330₂ and the upper resilient cushioning inserts 330₃ and 330₄. In some embodiments, each of the lower resilient cushioning inserts 330₁ and 330₂ and the upper resilient cushioning inserts 330₃ and 330₄ is capable of distributing any force imparted by the object 350 at the corners (e.g., force from the weight of the object 350) over a number of the inflated cells of the inner row 308. This distribution of force reduces the possibility of any one of the inflated cells in the inner row 308 receiving sufficient force to pop the one of the inflated cells.

[0069] In some embodiments disclosed herein, cushioning systems include resilient corner inserts and inflated quilted cushion segments. The resilient corner inserts are configured to be braced between walls of corners of a container and corners of an object enclosed in the container. The inflated quilted cushion segments are configured to extend along sides of the object between two of the resilient corner

inserts. The inflated quilted cushion segments arranged with respect to the resilient corner inserts, the container, and the object to deter movement of the inflated quilted cushion segments away from the sides of the object. One embodiment of a cushioning system with resilient corner inserts and inflated quilted cushion segments is depicted in a series of instances shown in Fig. 9A to 9F. More specifically, each of Figs. 9A to 9F depicts a side and a top view of one instance of forming the cushioning system with the resilient corner inserts and the inflated quilted cushion segments.

[0070] Fig. 9A depicts an inflated quilted cushion segment 400 located along a bottom of a container 460 opposite an opening 462 of the container 460. In some embodiments, the inflated quilted cushion segment 400 is an air cellular material. In the depicted embodiment, the inflated quilted cushion segment 400 includes an inner row 402 of inflated cells. The inflated quilted cushion segment 400 also includes an outer row 404 of inflated cells on one side of the inner row 402 (the side in front of the inner row 402 in the side view shown in Fig. 9A). The inflated quilted cushion segment 400 also includes an outer row 406 of inflated cells on another side of the inner row 402 (the side in back of the inner row 402 in the side view shown in Fig. 9A). In the depicted embodiment, the inflated quilted cushion segment 400 is folded about a longitudinal seam between the inner row 402 and the outer row 404 and the inflated quilted cushion segment 400 is folded about a longitudinal seam between the inner row 402 and the outer row 406.

[0071] Fig. 9A also depicts two resilient corner inserts 410 and 412 in the bottom corners of the container. The resilient corner insert 410 is configured to be braced against the bottom, the left side, the back, and the front of the container 460. The resilient corner insert 412 is configured to be braced against the bottom, the right side, the back, and the front of the container 460. In some embodiments, the resilient corner insert is made from a resilient material, such as a polymer foam material, a rubber material or another elastomeric material, any other another resilient material, or any combination thereof. In the depicted embodiment, the

inflated quilted cushion segment 400 extends between the resilient corner inserts 410 and 412. The inner row 402 is located against the bottom of the container, the outer row 404 is located against the front of the container 460, and the outer row 406 is located against the back of the container 460.

5 [0072] In the instance depicted in Fig. 9B, an object 450 has been placed in the container 460. The lower left corner of the object 450 is braced against the resilient corner insert 410 and the lower right corner of the object 450 is braced against the resilient corner insert 412. The lower side of the object 450 has been slid between the outer row 404 and the outer row 406 so that the inner row 402 of the quilted
10 cushion segment 400 extends along the bottom side of the object 450 between the resilient corner inserts 410 and 412. The outer row 404 extends up between the front of the container 460 and the front of the object 450 and the outer row 406 extends up between the back of the container 460 and the back of the object 450. In the arrangement shown in Fig. 9B, the inflated quilted cushion segment 400 is
15 arranged with respect to the resilient corner inserts 410 and 412, the container 460, and the object 450 to deter movement of the inflated quilted cushion segment 400 away from the bottom side of the object 450.

[0073] In the instance shown in Fig. 9C, an inflated quilted cushion segment 420 has been inserted between the left side of the object 450 and the left side of the
20 container 460. The inflated quilted cushion segment 420 includes an inner row 422 of inflated cells. The inflated quilted cushion segment 420 also includes an outer row 424 of inflated cells on one side of the inner row 422 (the side in front of the inner row 422 in the side view shown in Fig. 9C). The inflated quilted cushion segment 420 also includes an outer row 426 of inflated cells on another side of the
25 inner row 422 (the side in back of the inner row 422 in the side view shown in Fig. 9C). In the depicted embodiment, the inflated quilted cushion segment 420 is folded about a longitudinal seam between the inner row 422 and the outer row 424 and the inflated quilted cushion segment 420 is folded about a longitudinal seam between the inner row 422 and the outer row 426. The inner row 422 of the quilted cushion

segment 420 extends along the left side of the object 450 and is positioned between the left side of the object 450 and the left side of the container 460. The outer row 424 extends out between the front of the container 460 and the front of the object 450 and the outer row 426 extends out between the back of the container 460 and the back of the object 450.

[0074] Also depicted in the instance shown in Fig. 9C is an inflated quilted cushion segment 430 that has been inserted between the right side of the object 450 and the right side of the container 460. The inflated quilted cushion segment 430 includes an inner row 432 of inflated cells. The inflated quilted cushion segment 430 also includes an outer row 434 of inflated cells on one side of the inner row 432 (the side in front of the inner row 432 in the side view shown in Fig. 9C). The inflated quilted cushion segment 430 also includes an outer row 436 of inflated cells on another side of the inner row 432 (the side in back of the inner row 432 in the side view shown in Fig. 9C). In the depicted embodiment, the inflated quilted cushion segment 430 is folded about a longitudinal seam between the inner row 432 and the outer row 434 and the inflated quilted cushion segment 430 is folded about a longitudinal seam between the inner row 432 and the outer row 436. The inner row 432 of the quilted cushion segment 430 extends along the right side of the object 450 and is positioned between the right side of the object 450 and the right side of the container 460. The outer row 434 extends out between the front of the container 460 and the front of the object 450 and the outer row 436 extends out between the back of the container 460 and the back of the object 450.

[0075] In Fig. 9D, two resilient corner inserts 414 and 416 have been placed in the top corners of the container. The resilient corner insert 414 is configured to be braced against the left side, the back, and the front of the container 460. The resilient corner insert 412 is configured to be braced against the right side, the back, and the front of the container 460. The resilient corner inserts 414 and 416 are also configured to be braced against the top of the container 460 after the opening 462 is closed. The upper left corner of the object 450 is braced against the resilient corner

insert 414 and the upper right corner of the object 450 is braced against the resilient corner insert 416.

[0076] In the depicted embodiment, the inflated quilted cushion segment 420 extends between the resilient corner inserts 410 and 414 and the inflated quilted cushion segment 430 extends between the resilient corner inserts 412 and 416. The inner row 422 is located against the left side of the container 460, the outer row 424 is located against the front of the container 460, and the outer row 426 is located against the back of the container 460. The inner row 432 is located against the right side of the container 460, the outer row 434 is located against the front of the container 460, and the outer row 436 is located against the back of the container 460. In the arrangement shown in Fig. 9D, the inflated quilted cushion segment 420 is arranged with respect to the resilient corner inserts 410 and 414, the container 460, and the object 450 to deter movement of the inflated quilted cushion segment 420 away from the left side of the object 450. Similarly, the inflated quilted cushion segment 430 is arranged with respect to the resilient corner inserts 412 and 416, the container 460, and the object 450 to deter movement of the inflated quilted cushion segment 430 away from the right side of the object 450.

[0077] In the instance depicted in Fig. 9E, an inflated quilted cushion segment 440 has been inserted over the top side of the object 450. The inflated quilted cushion segment 440 includes an inner row 442 of inflated cells. The inflated quilted cushion segment 440 also includes an outer row 444 of inflated cells on one side of the inner row 442 (the side in front of the inner row 442 in the side view shown in Fig. 9E). The inflated quilted cushion segment 440 also includes an outer row 446 of inflated cells on another side of the inner row 442 (the side in back of the inner row 442 in the side view shown in Fig. 9E). In the depicted embodiment, the inflated quilted cushion segment 440 is folded about a longitudinal seam between the inner row 442 and the outer row 444 and the inflated quilted cushion segment 440 is folded about a longitudinal seam between the inner row 442 and the outer row 446. The inner row 442 of the quilted cushion segment 440 extends along the top side of the object 450

and is positioned above the top side of the object 450. The outer row 444 extends down between the front of the container 460 and the front of the object 450. The outer row 446 also extends down between the back of the container 460 and the back of the object 450.

5 [0078] In the instance shown in Fig. 9F, the top of the container 460 has been closed to close the opening 462. After the opening 462 is closed, the object 450 is enclosed by the container 460. The inner row 442 of the inflated quilted cushion segment 440 is arranged between the top side of the object 450 and the top of the container 460. The inflated quilted cushion segment 440 is arranged with respect to the resilient
10 corner inserts 414 and 416, the container 460, and the object 450 to deter movement of the inflated quilted cushion segment 440 away from the top side of the object 450.

[0079] One advantage to the system depicted in Fig. 9F is that the resilient corner inserts 410, 412, 414, and 416 are braced between the walls of the corners of the container 460 and corners of the object 450. In this arrangement, the any forces
15 from the weight of the object 450 are carried directly to the walls of the container 460 via the resilient corner inserts 410, 412, 414, and 416. This arrangement provides a more secure enclosure of the object 450 within the container 460. In addition, the inflated quilted cushion segments 400, 420, 430, and 440 extend, respectively, along the bottom, left, right, and top sides of the object 450. The inner rows 402, 422, 432,
20 and 442 of the inflated quilted cushion segments 400, 420, 430, and 440 protect the bottom, left, right, and top sides of the object 450 from impact forces. The outer rows 404, 424, 434, and 444 of the inflated quilted cushion segments 400, 420, 430, and 440 protect the front of the object 450 from impact forces. The outer rows 406, 426, 436, and 446 of the inflated quilted cushion segments 400, 420, 430, and 440
25 protect the back of the object 450 from impact forces.

[0080] The series of instances depicted in Figs. 9A to 9F is one embodiment of a process of packaging the container 460. Other processes may be used to package the container 460. In another embodiment, a process of packaging the container

460 includes first placing the resilient corner inserts 410 and 412 into the bottom of the container 460. Second, the inflated quilted cushion segments 400, 420, and 430 are placed on the bottom, left, and right sides of the object 450. Third, the object 450 is inserted into the container 460 so that the lower corners of the object 450 come into contact with the resilient corner inserts 410 and 412 and the inflated quilted cushion segments 400, 420, and 430 are located between the bottom, left, and right sides of the object 450 and the bottom, left, and right sides of the container 460, respectively. Third, the inflated quilted cushion segment 440 is placed on the top side of the object 450. Fourth, the resilient corner inserts 410 and 412 are placed into position at the top corners of the container 460 in contact with the top corners of the object 450. Fifth, the opening 462 of the container is closed. This embodiment is also just one of many possible embodiments of packaging the container 460. In other embodiments of packaging the container 460, the steps described above may be performed in any order to package the container 460.

[0081] The embodiment shown in Fig. 9F includes four separate inflated quilted cushion segments (i.e., inflated quilted cushion segments 400, 420, 430, and 440). In other embodiments, two or more of the inflated quilted cushion segments 400, 420, 430, and 440 may be formed as a single length of inflated quilted cushion. In one embodiment, the inflated quilted cushion segments 400, 420, and 430 are formed from a single length of inflated quilted cushion. In this example, the resilient corner inserts 410 and 412 may be placed into the bottom of the container 460 and the single length of inflated quilted cushion making up the inflated quilted cushion segments 400, 420, and 430 may be placed around the left, bottom, and right sides of the object 450. The object 450 with the single length of inflated quilted cushion forming the inflated quilted cushion segments 400, 420, and 430 may then be placed inside the container so that portions of the single length of inflated quilted cushion are located between the lower corners of the object 450 and the resilient corner inserts 410 and 412. In some cases, the lower corners of the object 450 may be aligned with transverse seams of the single length of inflated quilted cushion that are not inflated or minimally inflated. This alignment of transverse seams with the

corners of the object 450 may reduce the possibility of bursting the inflated cells of the inflated quilted cushion due to the weight of the object 450 at the lower corners.

[0082] In the embodiment depicted in Figs. 9A to 9F, the inflated quilted cushion segments 400, 420, 430, and 440 have the same quilt pattern. In the depicted example, the outer rows 404 and 406 include one inflated cell for every inflated cell of the inner row 402. Similarly, the outer rows 424 and 426 include one inflated cell for every inflated cell of the inner row 422, the outer rows 434 and 436 include one inflated cell for every inflated cell of the inner row 432, and the outer rows 444 and 446 include one inflated cell for every inflated cell of the inner row 442. In some embodiments, inflated cells in the inflated quilted cushion segments 400, 420, 430, and 440 may be in fluid communication with each other to permit concurrent inflation of the inflated cells. For example, each inflated cell in the inner row 402 may be in fluid communication in a transverse direction with a corresponding inflated cell in each of the outer rows 404 and 406. Similarly, each inflated cell in the inner row 422 may be in fluid communication in a transverse direction with a corresponding inflated cell in each of the outer rows 424 and 426, each inflated cell in the inner row 432 may be in fluid communication in a transverse direction with a corresponding inflated cell in each of the outer rows 434 and 436, and each inflated cell in the inner row 442 may be in fluid communication in a transverse direction with a corresponding inflated cell in each of the outer rows 444 and 446.

[0083] Using the same type of quilt pattern may be advantageous in certain situations, such as when the thickness of the object 450 is substantially similar on all four of the sides (i.e., bottom, left, right, and top sides) of the object 450. Having one type of quilt pattern may reduce packaging times and human error during packaging because a packager does not need to sort out inflated quilted cushion segments having multiple types of quilt patterns to package an object. In other embodiments, it may be advantageous to use different types of quilt patterns. One example of the use of different types of quilt pattern of inflated quilted cushion segments is depicted in an embodiment shown in Figs. 10A and 10B. More specifically, each of Figs. 10A

and 10B depicts a side and a top view of one instance of forming a cushioning system with the resilient corner inserts and inflated quilted cushion segments having multiple types of quilt patterns.

[0084] The instance shown in Fig. 10A is similar to the instance shown in Fig. 9D.

5 For example, Fig. 10A depicts the container 460 with resilient corner inserts 410, 412, 414, and 416 in the corners of the container, the inflated quilted cushion segment 400 extending between the resilient corner inserts 410 and 412, the inflated quilted cushion segment 420 extending between the resilient corner inserts 410 and 414, and the inflated quilted cushion segment 430 extending between the resilient
10 corner inserts 412 and 416.

[0085] The instance shown in Fig. 10A is different from the instance shown in Fig. 9D in that the container 460 does not include the object 450 (as it does in Fig. 9D), but instead includes an object 452. The object 452 is located top-side-down inside of the container 460 with the inflated quilted cushion segment 400 extending along the
15 top side of the object 452, the inflated quilted cushion segment 420 extending along the right side of the object 452, and the inflated quilted cushion segment 430 extending along the left side of the object 452. The bottom side of the object 452 is visible through the opening 462 at the top of the container 460. The bottom side of the object 452 has a different thickness than the other sides of the object 452. In the
20 depicted embodiment, the object 452 is a flat-screen television that has a base 454 on the bottom side of the object 452.

[0086] As can be seen in the top view of Fig. 10A, the base 454 is too wide to accommodate the same type of inflated quilted cushion as the inflated quilted cushion segment 400. In particular, the distance between the front of the container
25 460 and the base 454 is not large enough to accommodate an outer row of inflated cells that is as large as the outer row 404. Similarly, the distance between the back of the container 460 and the base 454 is not large enough to accommodate an outer row of inflated cells that is as large as the outer row 406. Thus, the same type of

inflated quilted cushion as the inflated quilted cushion segment 400 may not be used to cushion the bottom of the object 452 with the base 454.

[0087] In the instance depicted in Fig. 10B, an inflated quilted cushion segment 470 has been inserted over the bottom side of the object 452 and the base 454. The inflated quilted cushion segment 470 includes an inner row 472 of inflated cells. The inflated quilted cushion segment 470 also includes an outer row 474 of inflated cells on one side of the inner row 472 (the side in front of the inner row 472 in the side view shown in Fig. 10B). The inflated quilted cushion segment 470 also includes an outer row 476 of inflated cells on another side of the inner row 472 (the side in back of the inner row 472 in the side view shown in Fig. 10B). In the depicted embodiment, the inflated quilted cushion segment 470 is folded about a longitudinal seam between the inner row 472 and the outer row 474 and the inflated quilted cushion segment 470 is folded about a longitudinal seam between the inner row 472 and the outer row 476. The inner row 472 of the quilted cushion segment 470 extends along the bottom side of the object 452 and is positioned above the bottom side of the object 452. The outer row 474 extends down between the front of the container 460 and the front of the object 452. The outer row 476 also extends down between the back of the container 460 and the back of the object 452.

[0088] In the depicted embodiment, the outer rows 474 and 476 include three inflated cells for every inflated cell of the inner row 472. In some embodiments, each of the inflated cells of the inner row 472 is in fluid communication with three corresponding inflated cells of the outer row 474 and three corresponding inflated cells of the outer row 476. This configuration permits concurrent inflation of the inflated cells in a transverse direction across the inflated quilted cushion segment 470. Because there are three inflated cells in the outer rows 474 and 476 for each of the inflated cells of the inner row 472, the inflated cells in the outer rows 474 and 476 are not as wide as the inflated cells in the inner row 472. This allows the inflated cells of the outer rows 474 and 476 to pass through, respectively, the gap between the base 454 and the front of the container 460 and the gap between the base 454 and the back of the

container 460. In this way, the use of a different type of inflated quilted cushion (e.g., the type of the inflated quilted cushion segment 470 being different from the inflated quilted cushion segments 400, 420, and 430) accommodates a different thickness of the bottom side of the object 452. While the embodiment of the quilted cushion segment 470 shown in Fig. 10B includes three inflated cells in each of the outer rows 474 and 476 for each of the inflated cells of the inner row 472, it will be noted that the outer rows 474 and 476 may include any number of cells for each of the inflated cells of the inner row 472. For example, the quilted cushion segment 470 may have the same quilt pattern as the inflated quilted cushion 100 with two inflated cells in the outer rows 110 and 112 for each of the inflated cells in the inner row 108.

[0089] In the embodiments disclosed above, the resilient corner inserts have been in the shape of irregular pentagonal prisms of resilient material. In other embodiments, a resilient corner insert can be made by folding a piece of resilient material.

Depicted in Figs. 11A to 11D are views of a piece of resilient material 500 in an unfolded state—as shown in front and perspective views, respectively, in Figs. 11A and 11B—and the piece of resilient material 500 in a folded state that forms a resilient corner insert 524—as shown in perspective and side views, respectively, in Figs. 11C and 11D. In some embodiments, the piece of resilient material 500 is a resilient material, such as a polymer foam material, a rubber material or another elastomeric material, any other another resilient material, or any combination thereof. In some embodiments, the piece of resilient material 500 is capable of being bent or folded up to a 90° angle without physical deformation of the resilient material 500.

[0090] As seen in Figs. 11A and 11B, the piece of resilient material 500 has an object contact surface 502, a wing 504, and a wing 506. The object contact surface 502 is configured to contact an object (e.g., the corner of the object 450 or the corner of the object 452). The wings 504 and 506 are configured to contact walls of a container so that, when the piece of resilient material 500 is folded into a resilient corner insert, the resilient corner insert can be braced between the walls of the corner of the container and the object.

[0091] In the depicted embodiment, the object contact surface 502 is partially divided from the wing 504 by a slit 508 and the object contact surface 502 is also partially divided from the wing 506 by a slit 510. The slits 508 and 510 extend through the piece of resilient material 500. The slits 508 and 510 can have any shape that aids in the folding of the piece of resilient material 500 into the resilient corner insert 524. In the depicted embodiment, the slits 508 and 510 are C-shaped.

[0092] The wings 504 and 506 are configured to be braced against walls of a corner of a container. The wing 504 includes side walls 512 and 514. In the depicted embodiment, the side walls 512 and 514 are substantially perpendicular to each other. In other embodiments, the side walls 512 and 514 can be at any angle with respect to each other that permits the wing 504 to be braced against the walls of the corner of a container. The wing 506 includes side walls 516 and 518. In the depicted embodiment, the side walls 516 and 518 are substantially perpendicular to each other. In other embodiments, the side walls 516 and 518 can be at any angle with respect to each other that permits the wing 506 to be braced against the walls of the corner of a container. The piece of resilient material 500 also includes a top side 520 and a bottom side 522. The top side 520 extends from the side wall 512 to the side wall 516 at the top of the object contact surface 502 and the bottom side 522 extends from the side wall 514 to the side wall 518 at the bottom of the object contact surface 502.

[0093] From the configuration shown in Figs. 11A and 11B, the piece of resilient material 500 can be folded to form the resilient corner insert 524 depicted in Figs. 11C and 11D. More specifically, the wing 504 can be folded back until wing 504 is substantially perpendicular to the object contact surface 502. In the depicted embodiment, the seam 508 permits a majority of the wing 504 to be disconnected from the object contact surface 502 so that folding the wing 504 back does not cause the piece of resilient material 500 to break or tear. In the depicted embodiment, portions of the top and bottom of the wing 504 remain coupled to the object contact surface 502. The wing 506 can also be folded back in the same direction as the

wing 504 until wing 506 is substantially perpendicular to the object contact surface 502. In the depicted embodiment, the seam 510 permits a majority of the wing 506 to be disconnected from the object contact surface 502 so that folding the wing 506 back does not cause the piece of resilient material 500 to break or tear. In the depicted embodiment, portions of the top and bottom of the wing 506 remain coupled to the object contact surface 502.

[0094] As can be seen in the side view in Fig. 11D, the folding of the piece of resilient material 500 into the resilient corner insert 524 causes the resilient corner insert 524 to have an irregular polygonal cross section. However, as can be seen in Fig. 11C, the resilient corner insert 524 does not have resilient material between the wing 504 and the wing 506. This permits the resilient corner insert 524 to have a reduced weight compared to resilient corner inserts that are full irregular pentagonal prisms. This reduced weight of the resilient corner insert 524 as compared to a full irregular pentagonal prism may be advantageous, such as when the resilient corner insert 524 is used to package a container that is shipped and the cost of shipping increases with increased weight of the shipping container.

[0095] The resilient corner insert 524 can be used in place of resilient corner inserts in any of the embodiments shown herein. One example of the resilient corner insert 524 can be used in place of resilient corner inserts is depicted in the embodiment shown in Figs. 12A and 12B. More specifically, Figs 12A and 12B depict front and side views, respectively, of the instance of the container 460 depicted in Fig. 9E except that the resilient corner inserts 410, 412, 414, and 416 in Fig. 9E have been replaced with resilient corner inserts 524₁, 524₂, 524₃, and 524₄ in Figs. 12A and 12B. Each of the resilient corner inserts 524₁, 524₂, 524₃, and 524₄ is an instance of the resilient corner insert 524.

[0096] The wings 504 of the resilient corner inserts 524₁, 524₂, 524₃, and 524₄ are configured to be braced against the front wall of the container 526. The wings 506 of the resilient corner inserts 524₁, 524₂, 524₃, and 524₄ are configured to be braced

against the back wall of the container 526. The side walls 512 and 516 of the resilient corner insert 524₁ and the side walls 514 and 518 of the resilient corner insert 524₃ are braced against the left side of the container 460. The side walls 512 and 516 of the resilient corner insert 524₃ and the side walls 514 and 518 of the resilient corner insert 524₄ are braced against the top side of the container 460. The side walls 512 and 516 of the resilient corner insert 524₄ and the side walls 514 and 518 of the resilient corner insert 524₂ are braced against the right side of the container 460. The side walls 512 and 516 of the resilient corner insert 524₂ and the side walls 514 and 518 of the resilient corner insert 524₁ are braced against the bottom side of the container 460. The corners of the object 450 are braced against object contact surfaces 502 of the resilient corner inserts 524₁, 524₂, 524₃, and 524₄. In some embodiments, portions of the slits 508 of the resilient corner inserts 524₁, 524₂, 524₃, and 524₄ are configured to be braced against the front of the container 460 and portions of the slits 510 of the resilient corner inserts 524₁, 524₂, 524₃, and 524₄ are configured to be braced against the back of the container 460.

[0097] The embodiment of the piece of resilient material 500 and the resilient corner insert 524 depicted in Figs. 11A to 11D includes a particular shape of the piece of resilient material 500 and a particular manner of folding the piece of resilient material 500 into the resilient corner insert 524. In other embodiments, other pieces of resilient material may have any other shape and may be folded in any other manner to cause the pieces of resilient material to be folded into resilient corner inserts.

[0098] For purposes of this disclosure, terminology such as “upper,” “lower,” “vertical,” “horizontal,” “inwardly,” “outwardly,” “inner,” “outer,” “front,” “rear,” and the like, should be construed as descriptive and not limiting the scope of the claimed subject matter. Further, the use of “including,” “comprising,” or “having” and variations thereof herein is meant to encompass the items listed thereafter and equivalents thereof as well as additional items. Unless limited otherwise, the terms “connected,” “coupled,” and “mounted” and variations thereof herein are used

broadly and encompass direct and indirect connections, couplings, and mountings. Unless stated otherwise, the terms “substantially,” “approximately,” and the like are used to mean within 5% of a target value.

5 [0099] The principles, representative embodiments, and modes of operation of the present disclosure have been described in the foregoing description. However, aspects of the present disclosure which are intended to be protected are not to be construed as limited to the particular embodiments disclosed. Further, the
10 embodiments described herein are to be regarded as illustrative rather than restrictive. It will be appreciated that variations and changes may be made by others, and equivalents employed, without departing from the spirit of the present disclosure. Accordingly, it is expressly intended that all such variations, changes, and equivalents fall within the spirit and scope of the present disclosure, as claimed.

CLAIMS

What is claimed is:

1. A cushioning system, comprising:

an inflated quilted cushion having a first longitudinal seam, a second
5 longitudinal seam, an inner row between the first and second longitudinal seams, a
first outer row on a side of the first longitudinal seam opposite the inner row, and a
second outer row on a side of the second longitudinal seam opposite the inner row;
and

a resilient cushioning insert configured to be placed on the inflated quilted
10 cushion over the inner row;

wherein the inflated quilted cushion is capable of being folded at the first and
second longitudinal seams to be in a folded configuration;

wherein the resilient cushioning insert has a transverse width that permits the
resilient cushioning insert to remain between the first and second outer rows when
15 the inflated quilted cushion is in the folded configuration; and

wherein the resilient cushioning insert includes a first transverse side
configured to engage with the first outer row when the inflated quilted cushion is in
the folded configuration, and wherein engagement of the first transverse side with
the first outer row is arranged to deter longitudinal movement of the resilient
20 cushioning insert with respect to the inflated quilted cushion.

2. The cushioning system of claim 1, wherein inflated cells of the first outer row
form a first pattern when the inflated quilted cushion is in the folded configuration.

3. The cushioning system of claim 2, wherein the first transverse side has a first
inverse pattern, and wherein the first inverse pattern is substantially an inverse of the
25 first pattern of the first outer row.

4. The cushioning system of claim 1, wherein the resilient cushioning insert
includes a second transverse side configured to engage with the second outer row
when the inflated quilted cushion is in the folded configuration, and wherein

engagement of the second transverse side with the second outer row is arranged to deter longitudinal movement of the resilient cushioning insert with respect to the inflated quilted cushion.

5 5. The cushioning system of claim 4, wherein inflated cells of the second outer row form a second pattern when the inflated quilted cushion is in the folded configuration.

6. The cushioning system of claim 5, wherein the second transverse side has a second inverse pattern, and wherein the second inverse pattern is substantially an inverse of the second pattern of the second outer row.

10 7. The cushioning system of claim 1, wherein the resilient cushioning insert includes a folding notch configured to permit portions of the resilient cushioning insert to fold around a front or a back of an object.

8. The cushioning system of claim 7, wherein the folding notch is located on the first transverse side of the resilient cushioning insert.

9. An insert comprising a resilient cushioning material, wherein:

15 the insert is usable with an inflated quilted cushion that has a first longitudinal seam, a second longitudinal seam, an inner row between the first and second longitudinal seams, a first outer row on a side of the first longitudinal seam opposite the inner row, and a second outer row on a side of the second longitudinal seam opposite the inner row;

20 the insert has a transverse width that permits the insert to be located on the inflated quilted cushion between the first and second outer rows when the inflated quilted cushion is in a folded configuration where the inflated quilted cushion is folded at the first and second longitudinal seams; and

25 the insert includes a first transverse side configured to engage with the first outer row when the inflated quilted cushion is in the folded configuration to deter longitudinal movement of the insert with respect to the inflated quilted cushion.

10. The insert of claim 9, wherein inflated cells of the first outer row form a first pattern when the inflated quilted cushion is in the folded configuration, wherein the first transverse side has a first inverse pattern, and wherein the first inverse pattern is substantially an inverse of the first pattern of the first outer row.
- 5 11. The insert of claim 9, wherein the insert includes a second transverse side configured to engage with the second outer row when the inflated quilted cushion is in the folded configuration, and wherein engagement of the second transverse side with the second outer row is arranged to deter longitudinal movement of the insert with respect to the inflated quilted cushion.
- 10 12. The insert of claim 11, wherein inflated cells of the second outer row form a second pattern when the inflated quilted cushion is in the folded configuration, wherein the second transverse side has a second inverse pattern, and wherein the second inverse pattern is substantially an inverse of the second pattern of the second outer row.
- 15 13. The insert of claim 9, wherein the insert includes a folding notch configured to permit portions of the insert to fold around a front or a back of an object.
14. The insert of claim 13, wherein the folding notch is located on the first transverse side of the insert.

15. A method comprising:

placing an inflated quilted cushion across an opening of a container with a portion of an inner row of the inflated quilted cushion located over the opening, wherein the inflated quilted cushion includes a first longitudinal seam and a second longitudinal seam with the inner row located between the first and second longitudinal seams, and wherein the inflated quilted cushion includes a first outer row on a side of the first longitudinal seam opposite the inner row and a second outer row on a side of the second longitudinal seam opposite the inner row;

placing two lower resilient cushioning inserts on the inner row with at least a portion of each of the two lower resilient cushioning inserts located above the opening of the container;

positioning an object over the inflated quilted cushion and the two lower resilient cushioning inserts with two sides of the object aligned with the two lower resilient cushioning inserts respectively;

folding at least a portion of the inflated quilted cushion into a folded configuration, wherein, in the folded configuration, the portion of the inflated quilted cushion is folded about the first and second longitudinal seams such that at least a portion of each of the first and second outer rows is at a non-straight angle with respect to the inner row; and

feeding the object into the container, wherein the feeding causes the two lower resilient cushioning inserts to fold so that first portions of the two lower resilient cushioning inserts remain below the object and second portions of the two lower resilient cushioning inserts are located along the two sides of the object;

wherein each of the two lower resilient cushioning inserts includes a first transverse side configured to engage with the first outer row when the portion of the first outer row is folded about the first longitudinal seam to deter longitudinal movement of the two lower resilient cushioning inserts with respect to the inflated quilted cushion.

16. The method of claim 15, further comprising:

placing a first portion of each of two upper resilient cushioning inserts between one of the two sides of the object and the inner row such that a second

portion of each of the two upper resilient cushioning inserts extends above the object.

17. The method of claim 16, further comprising:

5 folding the two upper resilient cushioning inserts so that the second portions of the two upper resilient cushioning inserts are located along a top of the object.

18. The method of claim 17, further comprising:

folding the inflated quilted cushion over the second portions of the two upper resilient cushioning inserts on the top of the object.

19. The method of claim 18, further comprising:

10 closing the opening of the container over the inflated quilted cushion that is over the second portions of the two upper resilient cushioning inserts on the top of the object.

20. The method of claim 15, wherein at least one of the two lower resilient cushioning inserts includes a folding notch configured to permit portions of the one of
15 the two lower resilient cushioning inserts to fold around a front or a back of the object.

21. A cushioning system comprising:

a container configured to enclose an object;

20 a plurality of resilient corner inserts, wherein each of the plurality of resilient corner inserts is configured to be braced between walls of a corner of the container and a corner of the object; and

25 a plurality of inflated quilted cushion segments, wherein each of the plurality of inflated quilted cushion segments is configured to extend along a side of the object between two of the plurality of resilient corner inserts and is arranged with respect to the two of the plurality of resilient corner inserts, the container, and the object to deter movement of the inflated quilted cushion segment away from the side of the object.

22. The cushioning system of claim 21, wherein each of the plurality of inflated quilted cushion segments includes an inner row of inflated cells configured to be located between the side of the object and the container.

5 23. The cushioning system of claim 22, wherein each of the plurality of inflated quilted cushion segments includes a first outer row on a side of a first longitudinal seam opposite the inner row and a second outer row on a side of a second longitudinal seam opposite the inner row.

10 24. The cushioning system of claim 23, wherein each of the plurality of inflated quilted cushion segments is configured to be folded about the first longitudinal seam and the second longitudinal seam such that the first outer row is located between a front of the object and the container and the second outer row is located between a back of the object and the container.

15 25. The cushion system of claim 21, wherein the plurality of inflated quilted cushion segments includes a first inflated quilted cushion segment having a first quilt pattern and a second inflated quilted cushion segment having a second quilt pattern.

26. The cushion system of claim 25, wherein the first inflated quilted cushion segment is located along a first side of the object, the second inflated quilted cushion segment is located along a second side of the object, and wherein the second quilt pattern is configured to accommodate a feature of the second side of the object.

20 27. The cushion system of claim 21, wherein at least one of the plurality of resilient corner inserts includes an object contact surface, a first wing, and a second wing.

25 28. The cushion system of claim 27, wherein the at least one of the plurality of resilient corner inserts is configured to be in a folded configuration when the at least one of the plurality of resilient corner inserts is braced between the walls of a corner of the container and a corner of the object.

29. The cushion system of claim 28, wherein, when the at least one of the plurality of resilient corner inserts is in the folded configuration, each of the first and second wings are substantially perpendicular to the object contact surface.

5 30. The cushion system of claim 28, wherein each of the first and second wings includes a first side surface and a second side surface.

31. The cushion system of claim 30, wherein the first and second side surfaces of each of the first and second wings are substantially perpendicular to each other.

10 32. The cushion system of claim 30, wherein, when the at least one of the plurality of resilient corner inserts is in the folded configuration and is braced between the walls of the corner of the container and the corner of the object, the first and second side surfaces of each of the first and second wings are in contact with a first wall of the container and a second wall of the container, respectively.

33. The cushion system of claim 21, wherein the plurality of inflated quilted cushion segments are all of the same type of inflated quilted cushion.

15 34. The cushion system of claim 21, wherein at least one of the plurality of inflated quilted cushions is a different type of inflated quilted cushion than another one of the plurality of inflated cushions.

20 35. The cushion system of claim 34, wherein the at least one of the plurality of inflated quilted cushions is configured to accommodate a different thickness of one side of the object.

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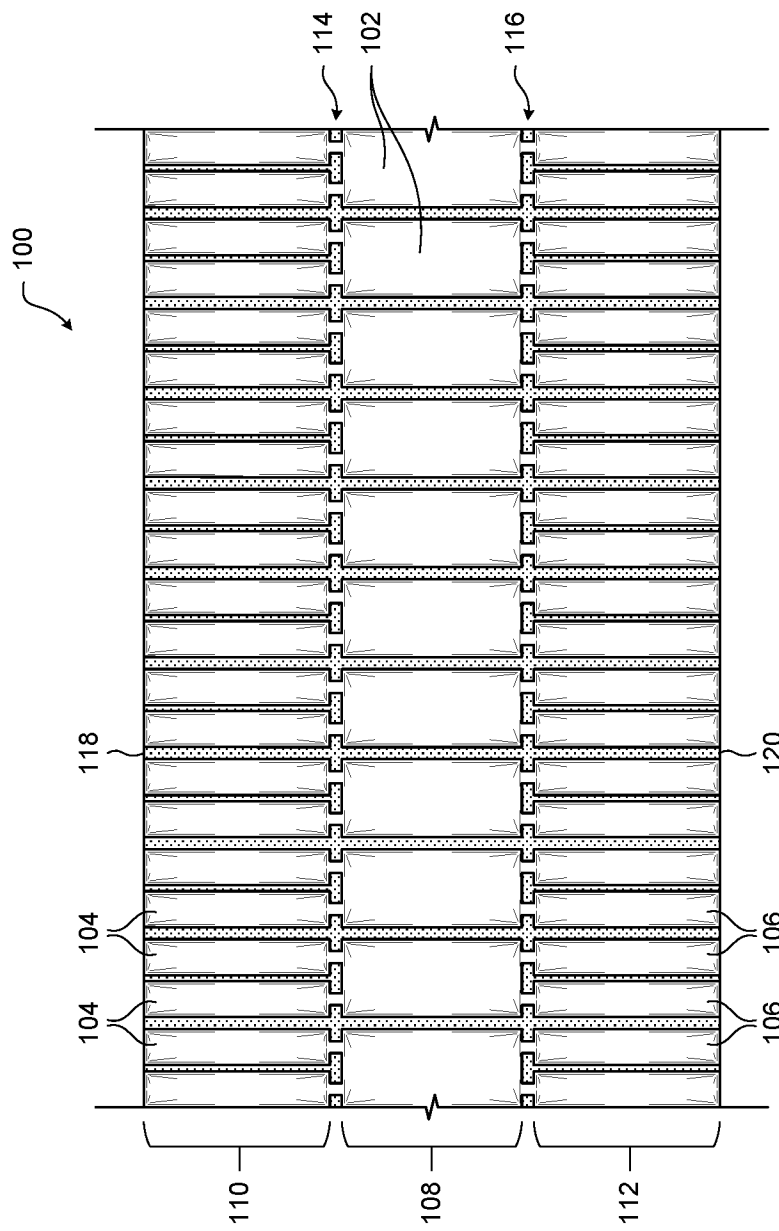


Fig. 1

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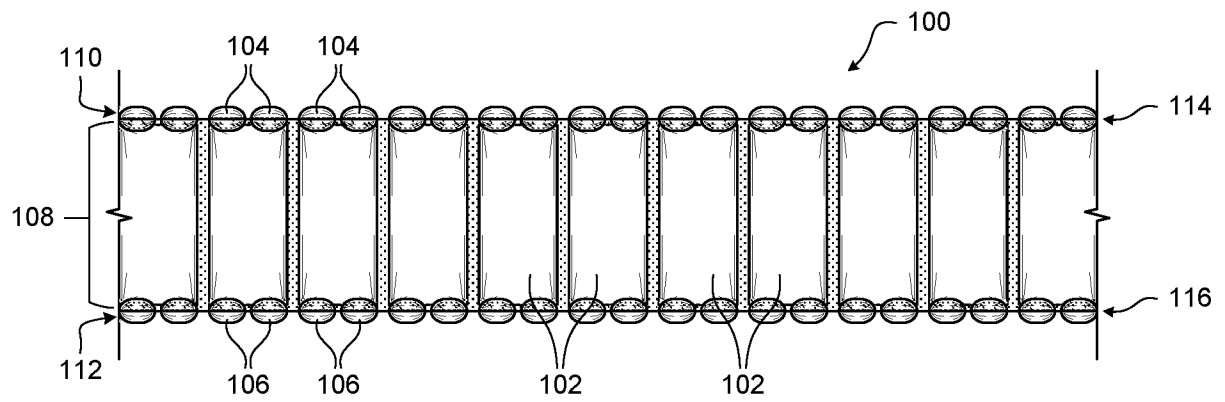


Fig. 2A

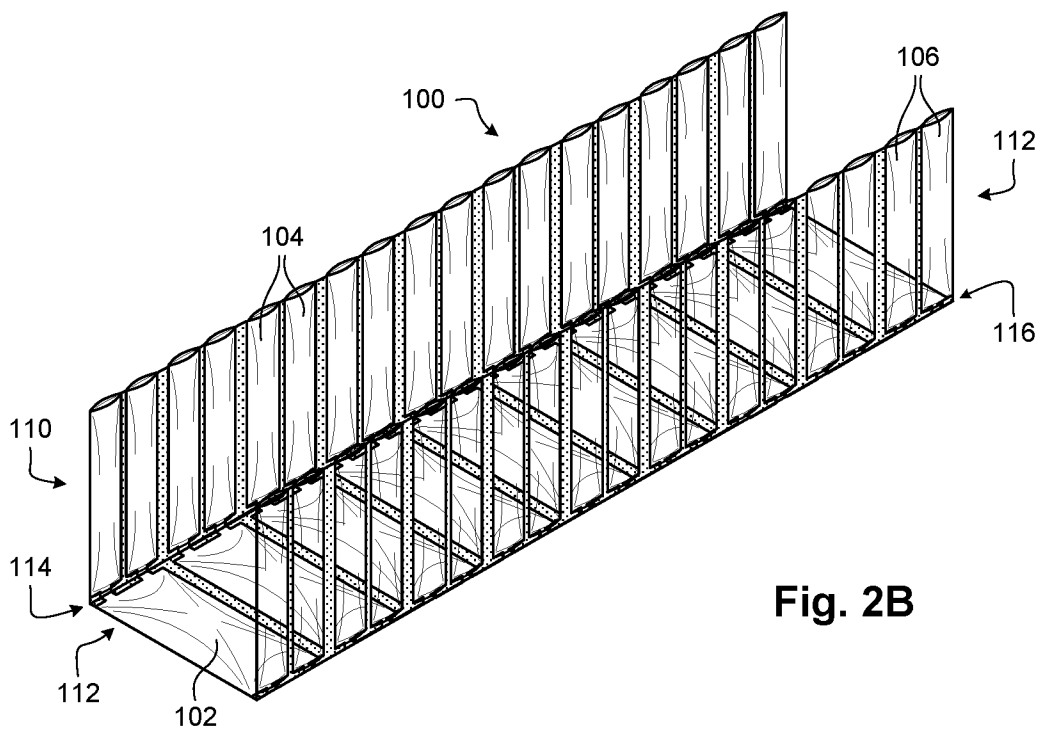
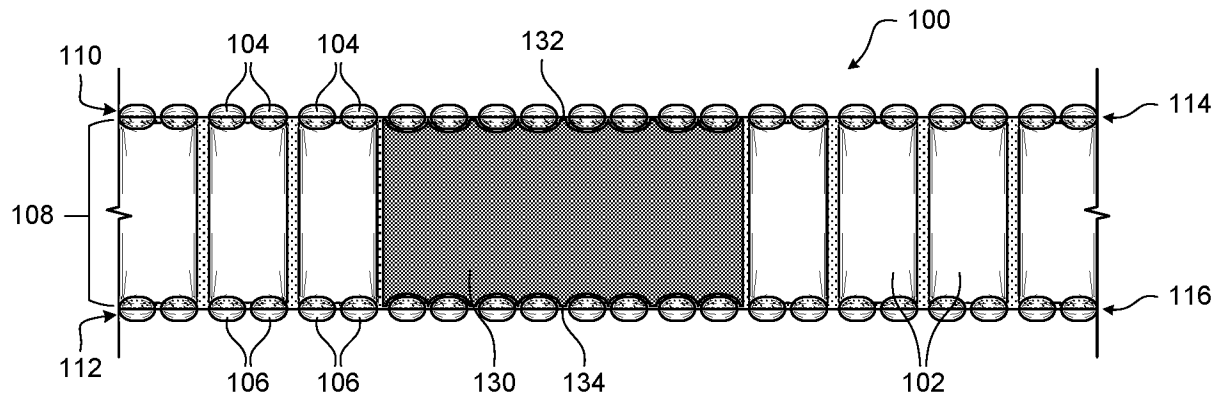
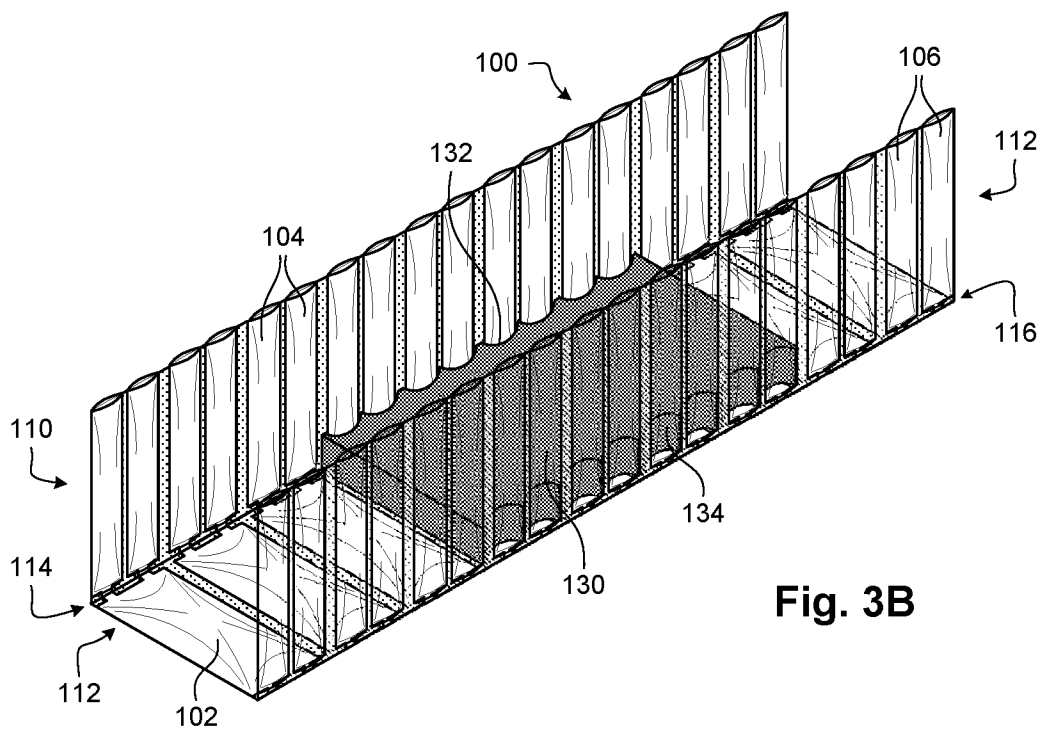


Fig. 2B

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**Fig. 3A****Fig. 3B**

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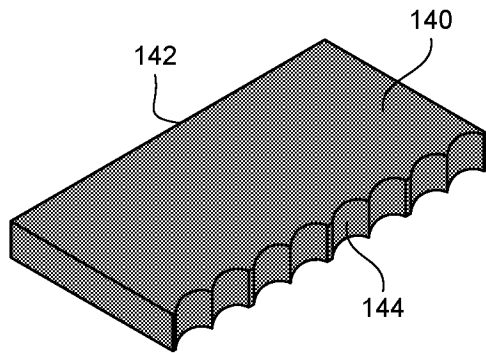


Fig. 4A

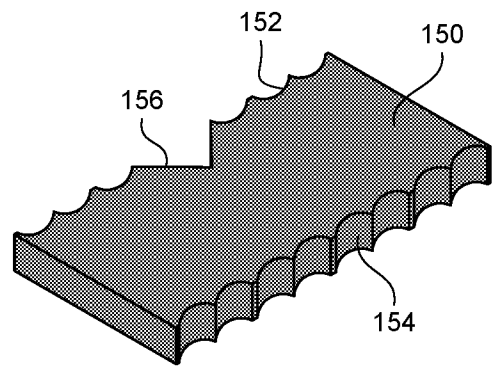


Fig. 4B

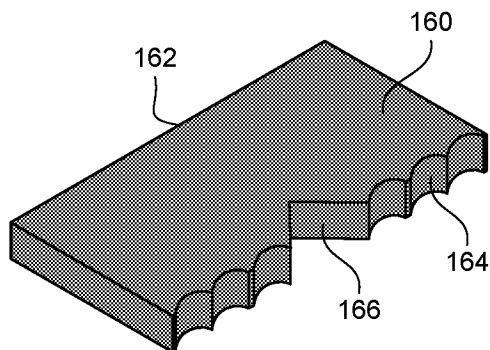


Fig. 4C

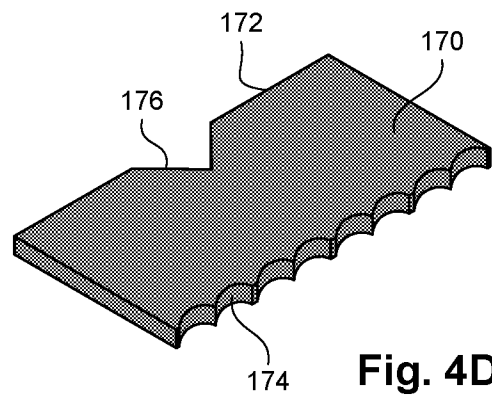


Fig. 4D

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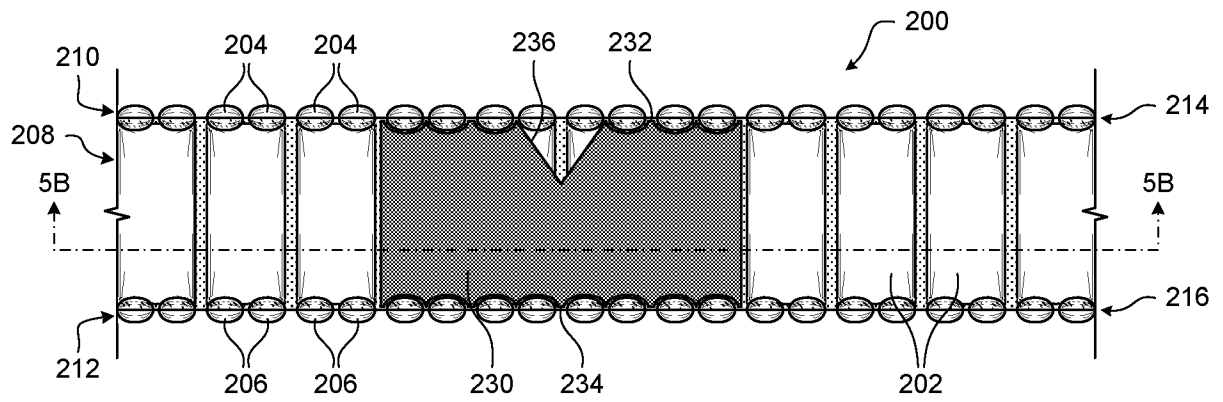


Fig. 5A

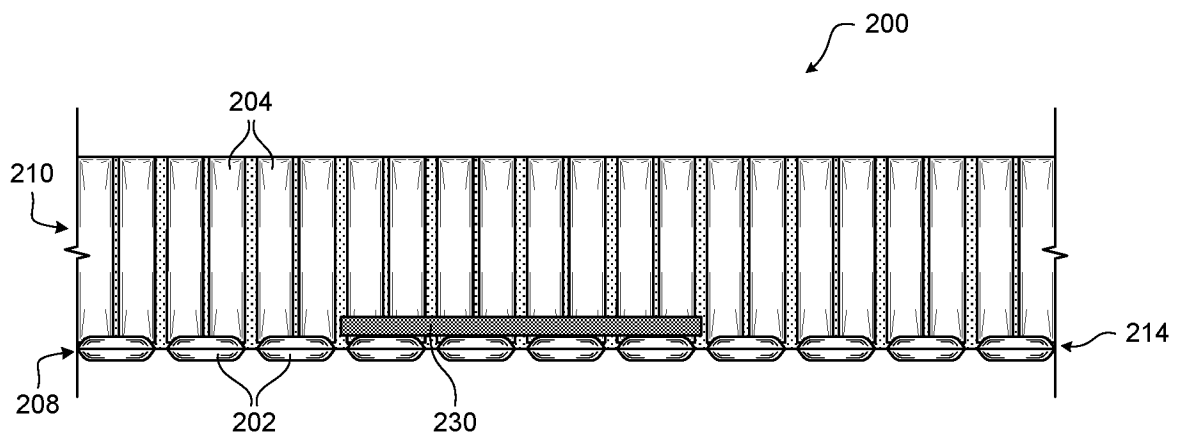


Fig. 5B

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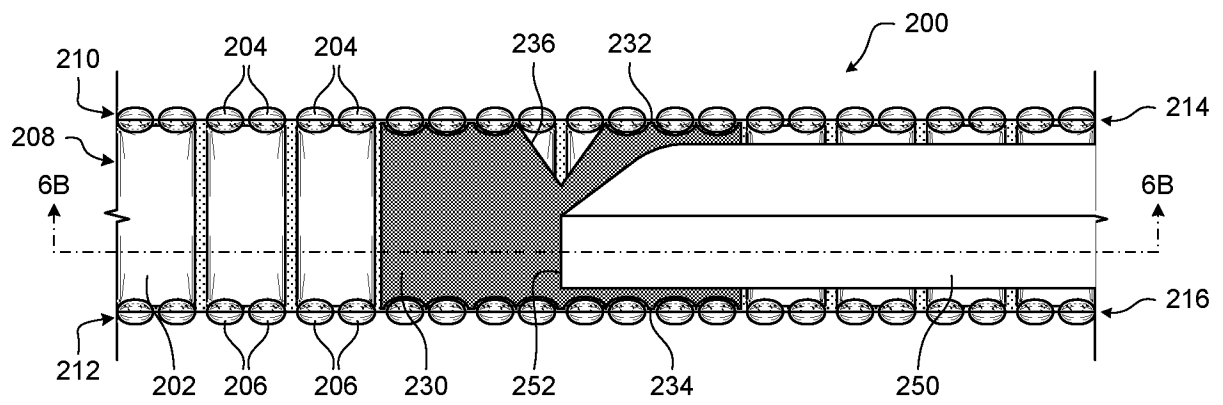


Fig. 6A

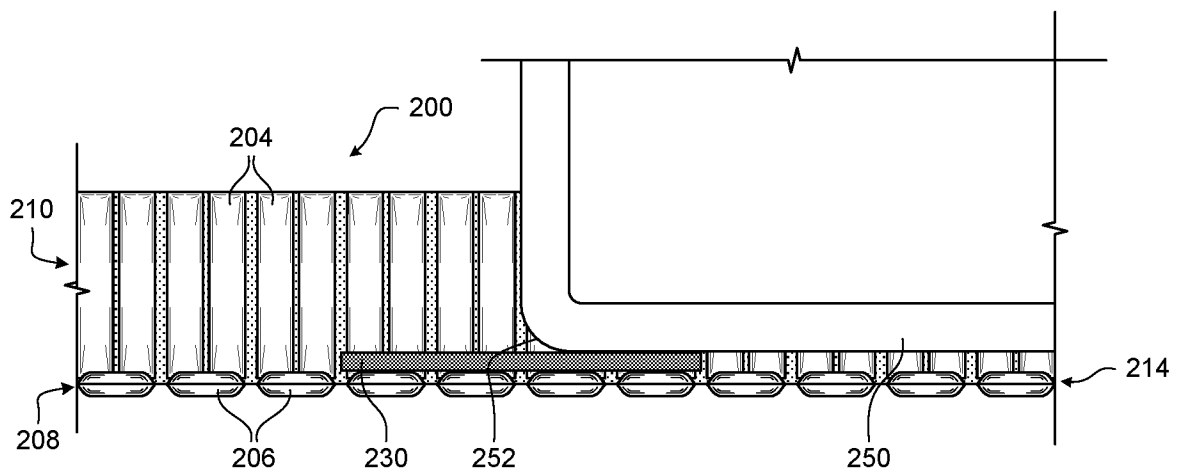


Fig. 6B

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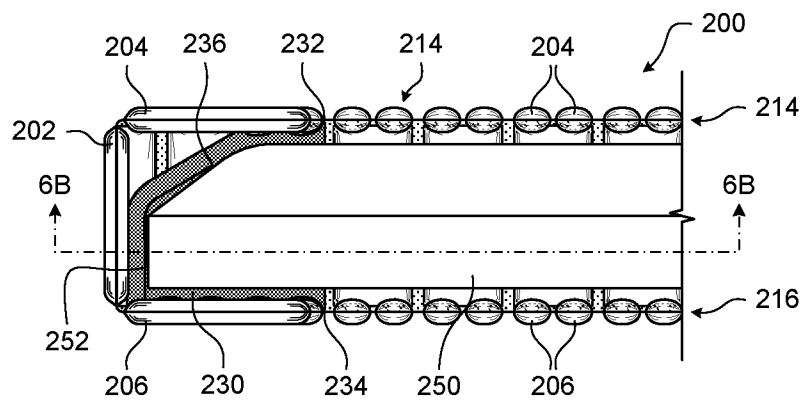


Fig. 7A

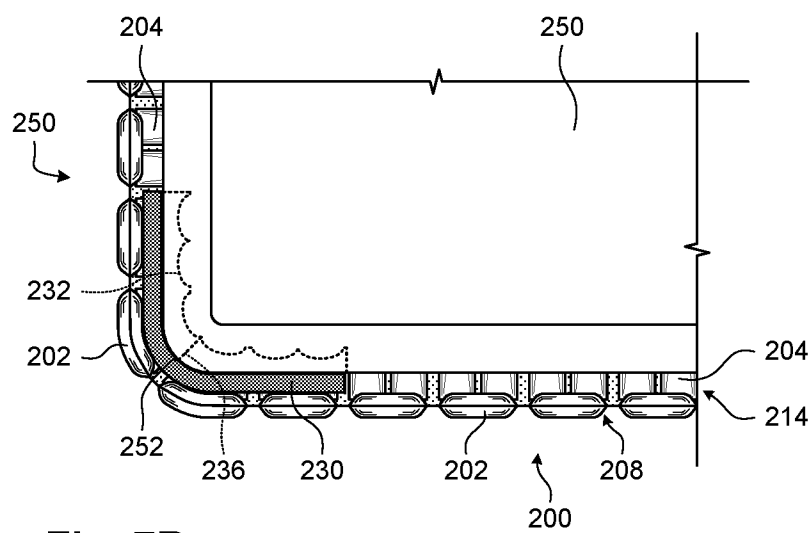


Fig. 7B

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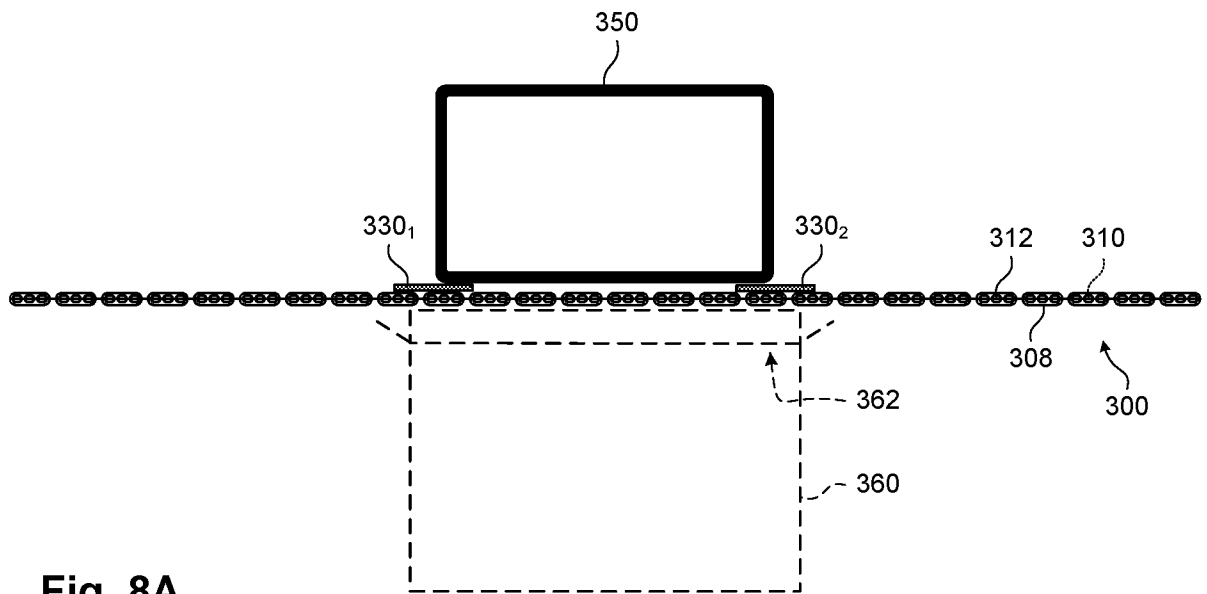


Fig. 8A

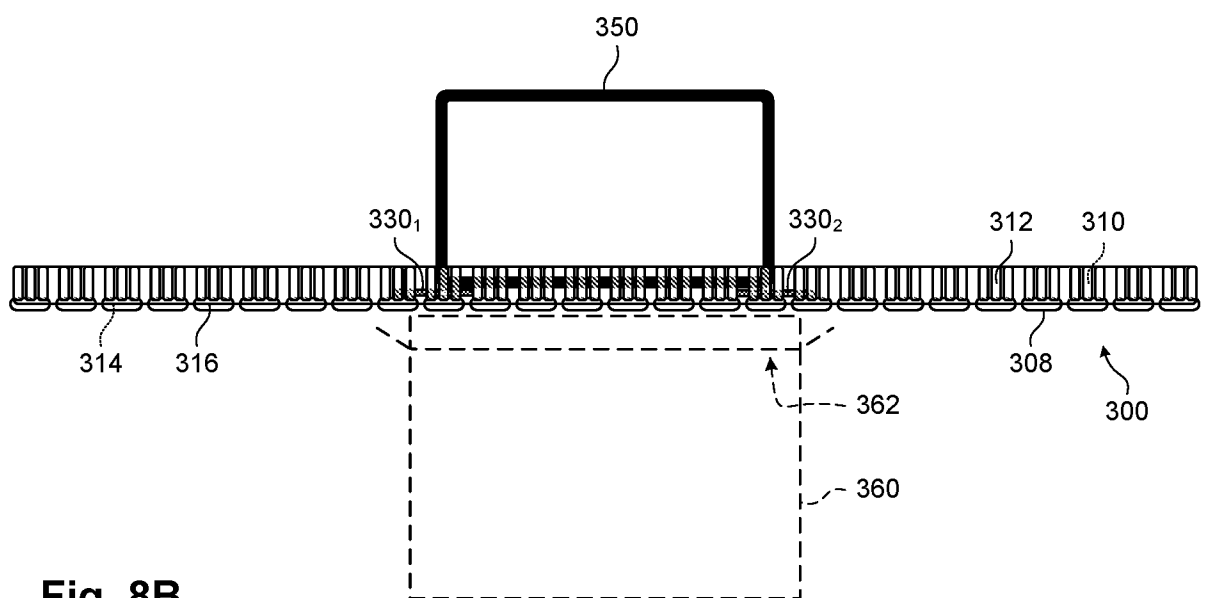


Fig. 8B

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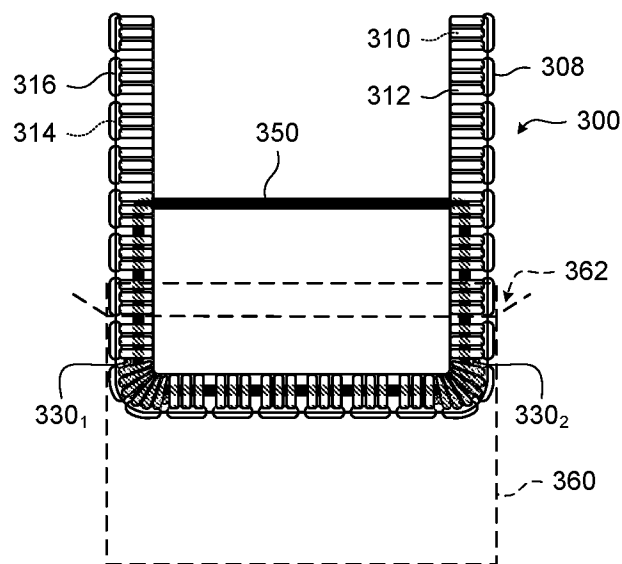


Fig. 8C

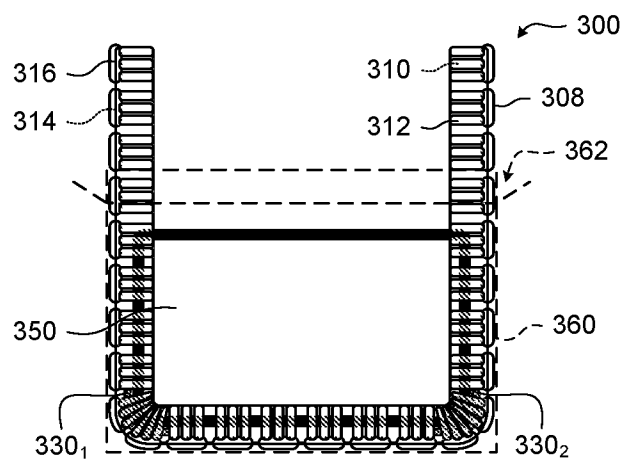
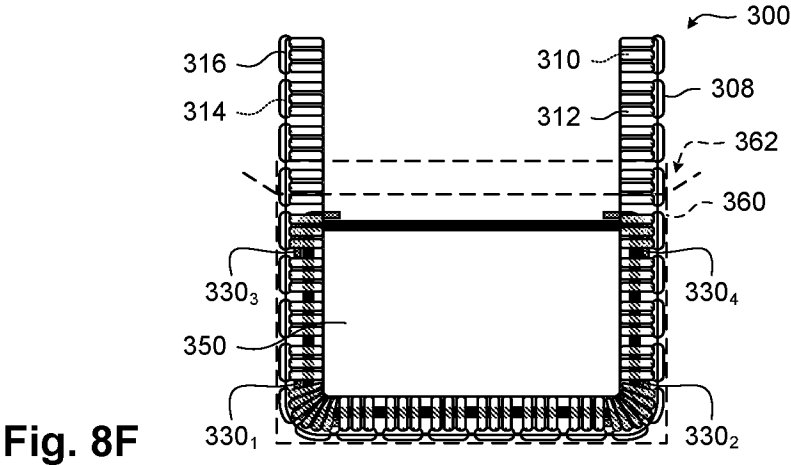
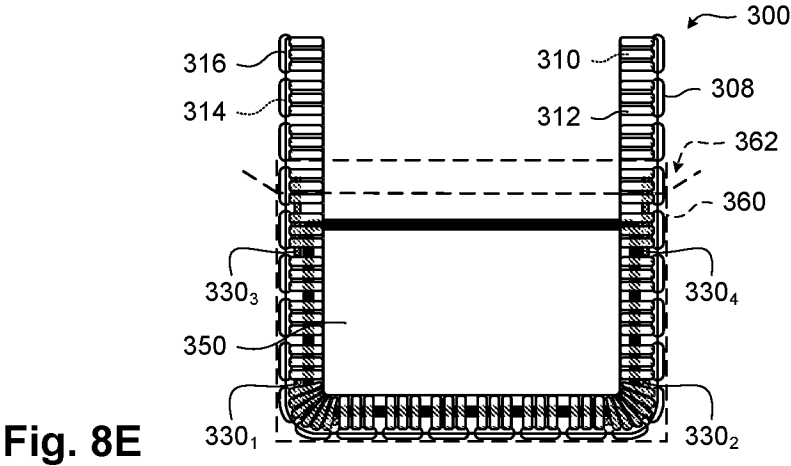


Fig. 8D



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Fig. 8G

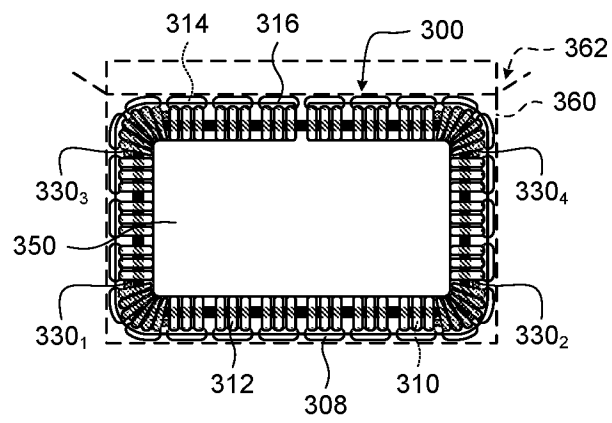
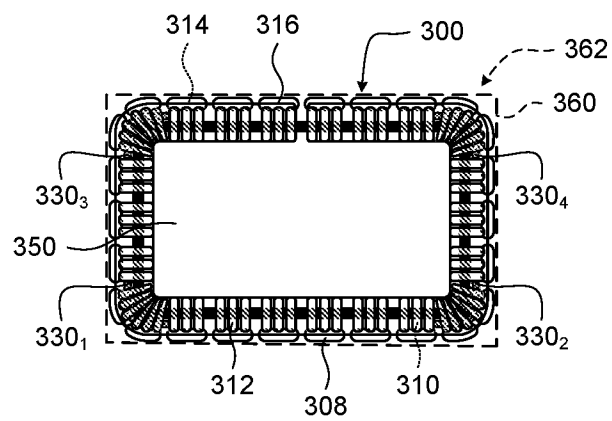


Fig. 8H



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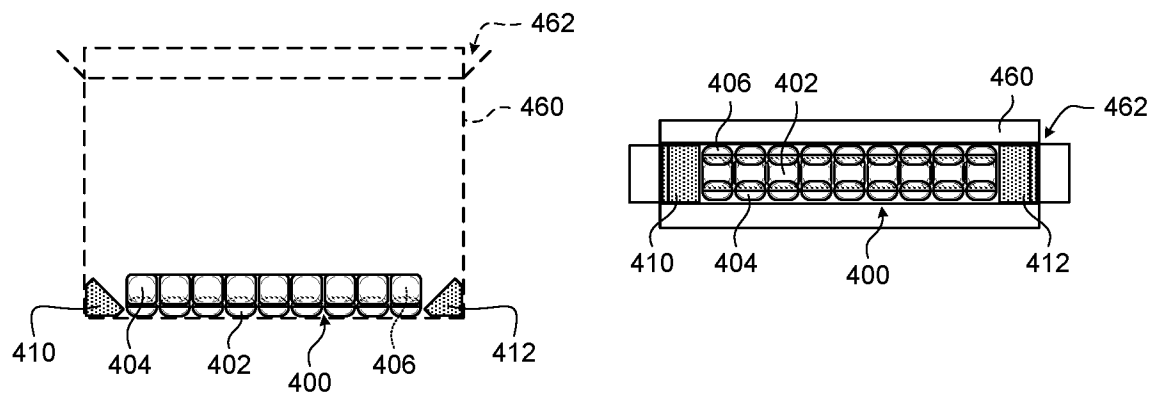


Fig. 9A

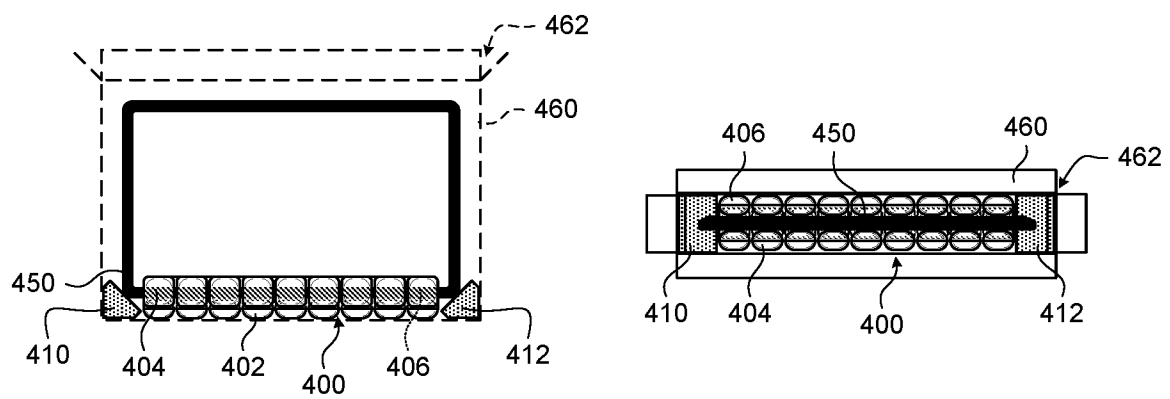


Fig. 9B

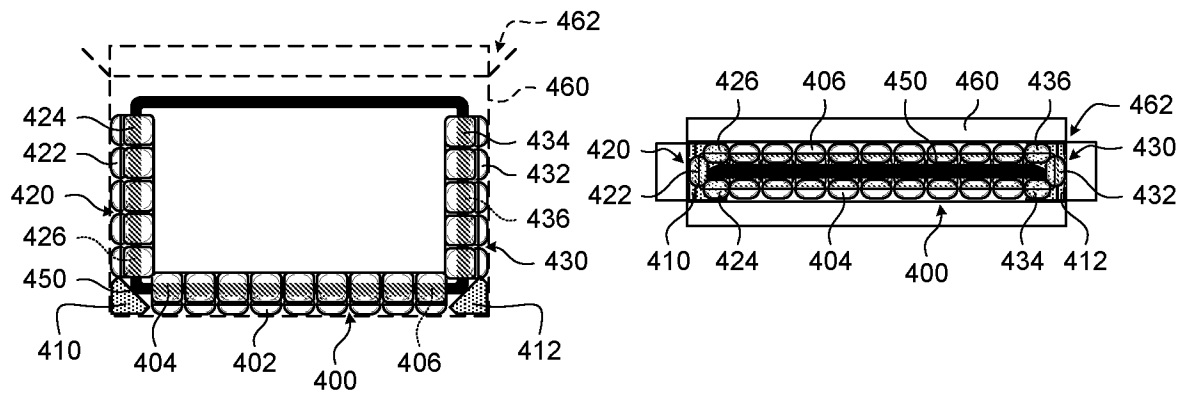


Fig. 9C

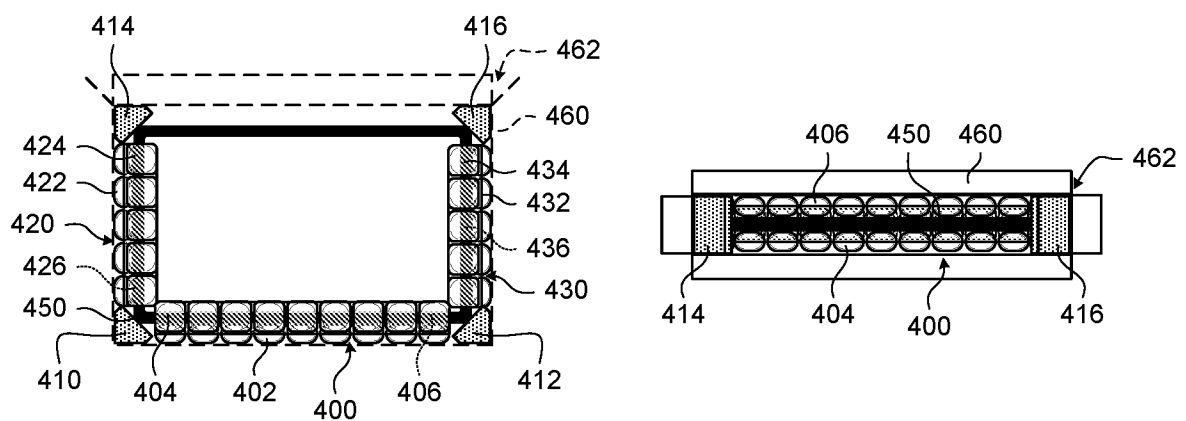


Fig. 9D

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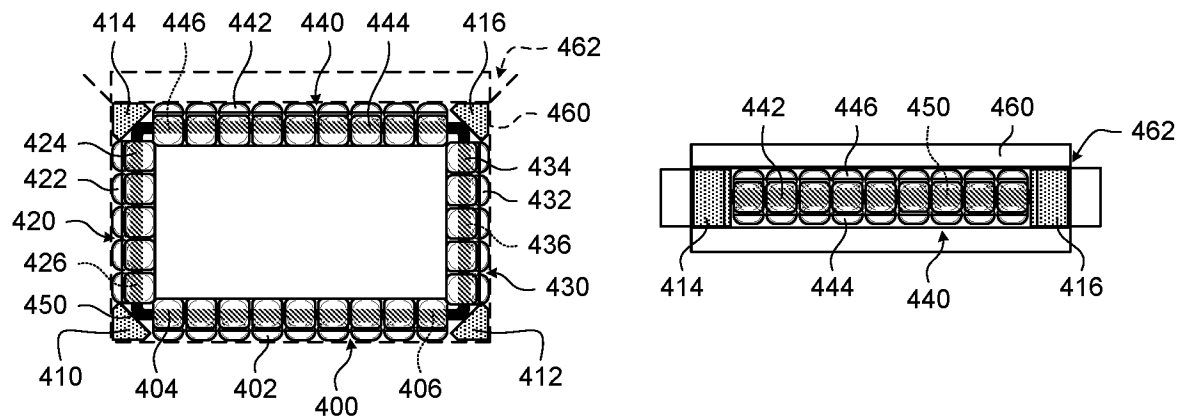


Fig. 9E

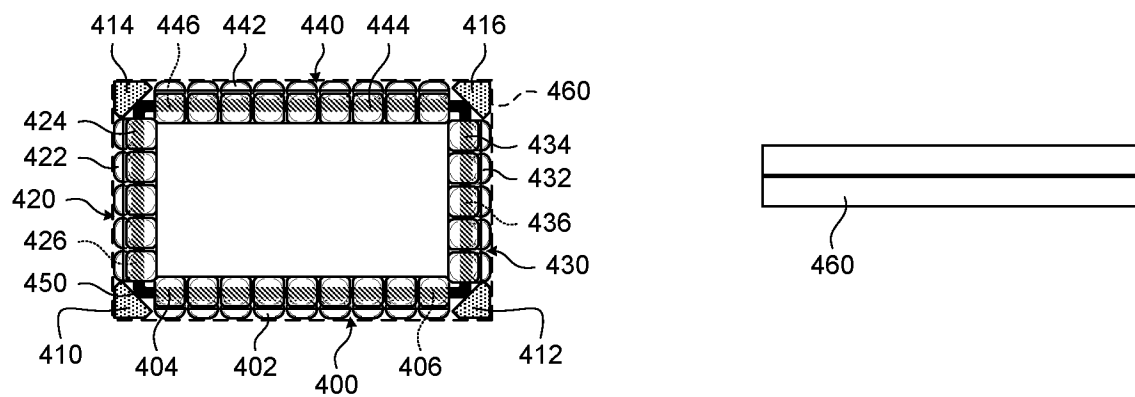


Fig. 9F

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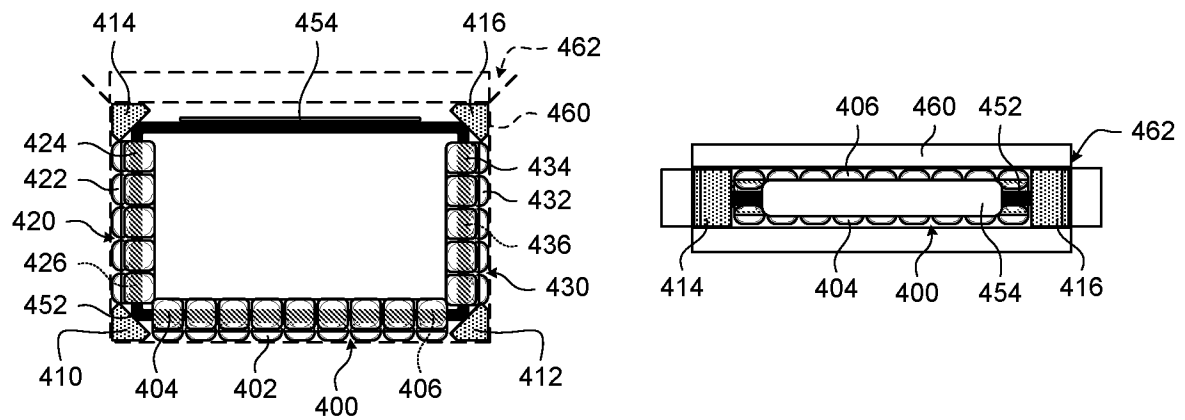


Fig. 10A

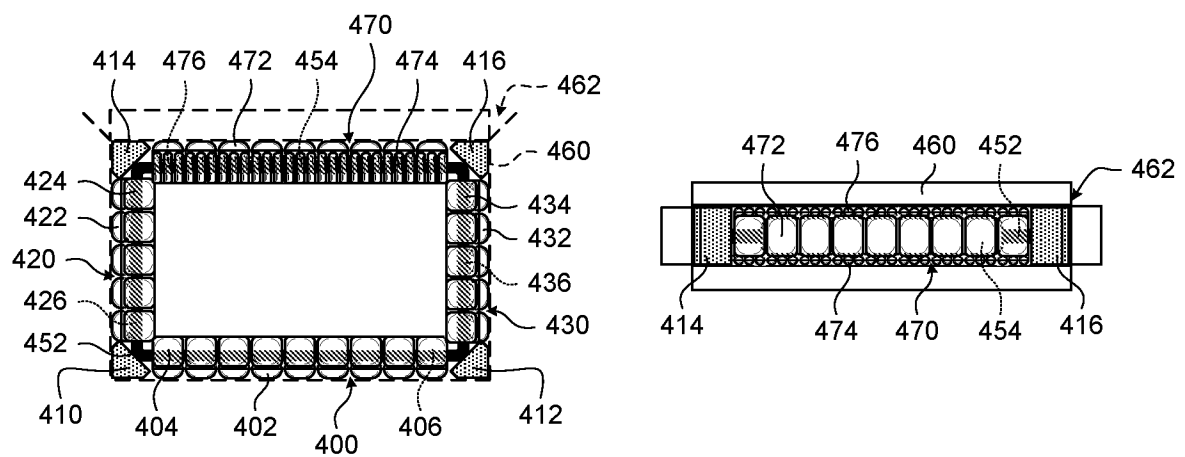


Fig. 10B

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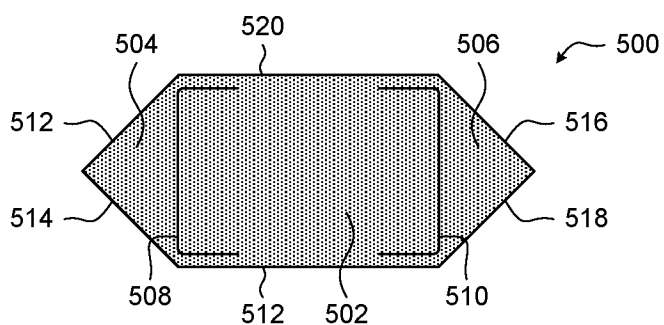


Fig. 11A

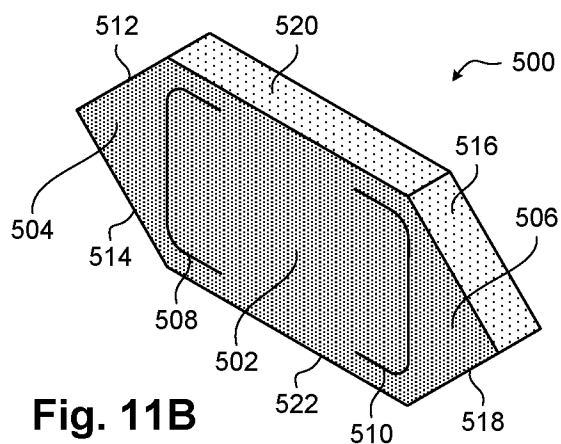


Fig. 11B

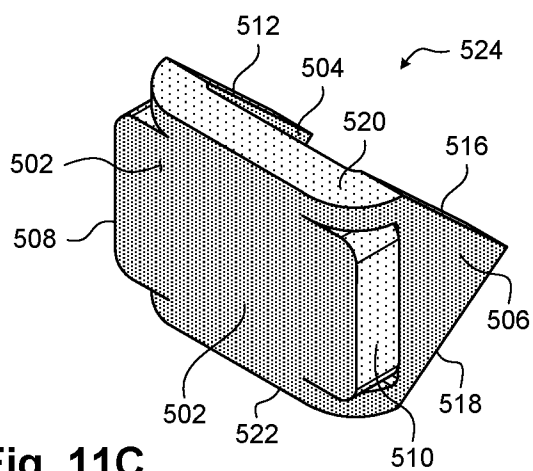


Fig. 11C

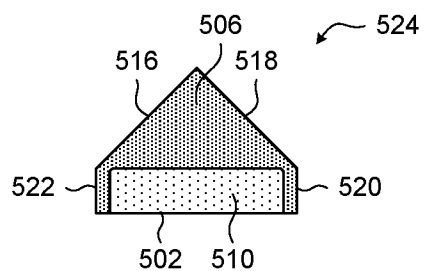


Fig. 11D

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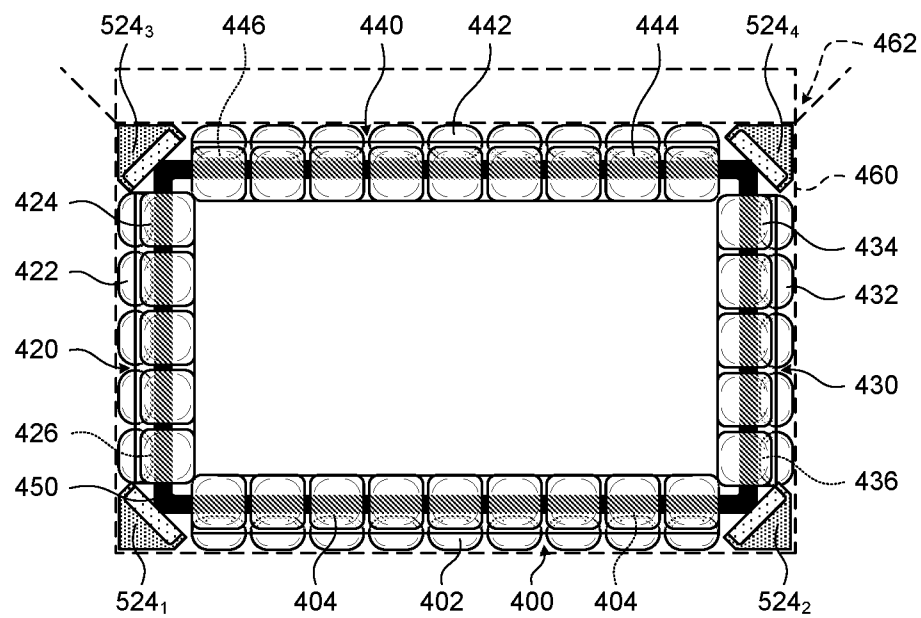


Fig. 12A

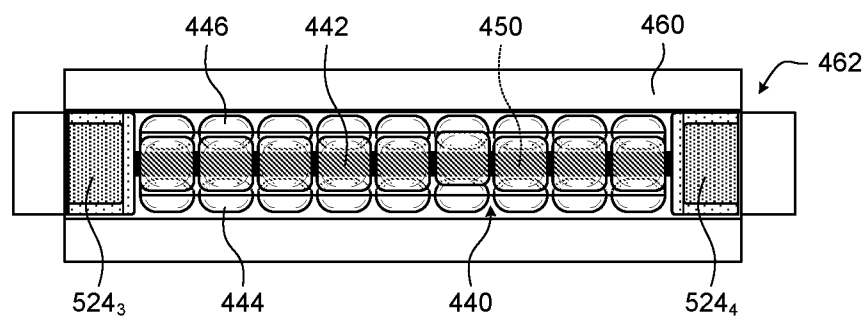


Fig. 12B

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2018/040188

A. CLASSIFICATION OF SUBJECT MATTER
 INV. B65D81/05
 ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 101 259 888 A (JIANHUA LIAO [CN]) 10 September 2008 (2008-09-10) abstract; figures 1,3A,3B,4,5A,5B -----	1-35
X	US 2001/001446 A1 (MOREYRA ALBERT [US]) 24 May 2001 (2001-05-24) abstract; figures 4,5 -----	9-12
A	US 2009/266739 A1 (KINDIG MICHAEL A [US]) 29 October 2009 (2009-10-29) abstract; figures 1-3 paragraph [0024] - paragraph [0033] -----	1-8, 13-35
X	US 2006/108256 A1 (BUSSEY BUDDY H III [US] ET AL) 25 May 2006 (2006-05-25) abstract; figures 1-8 paragraph [0039] - paragraph [0075] -----	9-12
A		1-8, 13-35
A		1-35



Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

28 August 2018

Date of mailing of the international search report

07/09/2018

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040,
 Fax: (+31-70) 340-3016

Authorized officer

Segerer, Heiko

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2018/040188

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
CN 101259888	A	10-09-2008	NONE	

US 2001001446	A1	24-05-2001	NONE	

US 2009266739	A1	29-10-2009	NONE	

US 2006108256	A1	25-05-2006	NONE	
