(19) DANMARK

(10) DK/EP 4041653 T3

(12) Oversættelse af europæisk patentskrift

Patent- og Varemærkestyrelsen

(51) Int.Cl.: *A 45 C 3/00 (2006.01)* *A 45 C 11/20 (2006.01)* *A 45 C 13/10 (2006.01)*
B 65 D 81/38 (2006.01)

(45) Oversættelsen bekendtgjort den: **2024-03-25**

(80) Dato for Den Europæiske Patentmyndigheds bekendtgørelse om meddelelse af patentet: **2024-01-10**

(86) Europæisk ansøgning nr.: **20817162.9**

(86) Europæisk indleveringsdag: **2020-11-10**

(87) Den europæiske ansøgnings publiceringsdag: **2022-08-17**

(86) International ansøgning nr.: **US2020059783**

(87) Internationalt publikationsnr.: **WO2021096831**

(30) Prioritet: **2019-11-15 US 201916685124**

(84) Designerede stater: **AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**

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(54) Benævnelse: **ISOLERENDE ANORDNING**

(56) Fremdragne publikationer:
US-A1- 2004 035 143
US-A1- 2005 072 181
US-A1- 2017 036 844

DESCRIPTION

Cross-Reference to Related Application

[0001] This application claims priority to U.S. Patent Application No. 16/685,124, filed November 15, 2019.

Field of Invention

[0002] The present disclosure relates generally to non-rigid, portable, insulated devices or containers useful for keeping food and beverages cool or warm, and, more particularly, a soft-sided insulated lunchbox.

Background

[0003] Insulated devices or lunchboxes are designed to keep food and beverages at lower temperatures. The containers may be composed of flexible materials such as fabric or foams. Insulated lunchboxes may be designed to promote portability. The lunchboxes may include straps and/or handles and may in certain instances be made of lighter weight materials to facilitate mobility. The lunchboxes may include a closure that can open and close a lid to a body of the lunchbox either allow or prevent access to the storage compartment and its interior contents.

[0004] Documents US 2017/036844 A1, US 2005/072181 A1 and US 2004/035143 A1 disclose such insulating devices.

Brief Summary

[0005] This Summary provides an introduction to some general concepts relating to this disclosure in a simplified form that are further described below in the Detailed Description. This Summary is not intended to identify key features or essential features of the disclosure.

[0006] Aspects of the disclosure herein may relate an insulating device that includes a body assembly, where the body assembly includes a bottom layer, a first sidewall attached to the bottom layer, an inner liner, and an insulating layer, where at least a portion of the insulating layer is positioned between the first sidewall and the inner liner, and a lid assembly rotatably connected to the body assembly, where the lid assembly includes an upper layer, a lid insulating layer, and a lid liner. A storage compartment may be formed by the body assembly

and the lid assembly, where the insulating device has an open configuration providing access to the storage compartment and a closed configuration preventing access to the storage compartment. A closure may be positioned between the body assembly and the lid assembly, where the closure is adapted to selectively connect the body assembly and the lid assembly, and an insulated tab may be formed from a portion of the inner liner and a portion of the insulating layer, where the insulated tab is within the storage compartment and inward of the closure and having a distal end positioned above a midpoint of the closure wherein the midpoint of the closure is the location where the closure divides between a portion attached to the body assembly and a portion attached to the lid assembly, wherein the insulated tab includes a first magnetic element that engages a second magnetic element on the lid assembly when the insulating device is in the closed configuration. The lid assembly may include perimeter edges that extend upward away from the body assembly, where the perimeter edges have an edge height defined as a vertical height from a top surface of the perimeter edges to a top surface of the upper layer, where the edge height is at least 2 times greater than a thickness of the lid insulating layer. In addition, the perimeter edges may have an edge height defined as a vertical height from a top surface of the perimeter edges to a top surface of the upper layer, where the edge height may be within a range of 10 percent and 20 percent of a total height of the insulating device. The closure may be attached to the first sidewall with a connection element, where the connection element extends through the closure, the first sidewall, the inner liner, and the insulating layer when viewed in a cross-section formed by a vertical plane extending perpendicular to a bottom surface of the insulating device.

[0007] Other aspects of this disclosure may relate to an insulating device having an insulated tab behind the closure, where the insulated tab is formed from a portion of the inner liner, and the inner liner forms an outward facing layer of the insulated tab and an inward facing layer of the insulated tab. The inner liner may extend around the insulating layer from the inward facing layer to the outward facing layer, where the insulated tab is connected to the closure at a base end. The insulated tab is may be connected to the closure at the base end via a connection element that extends through the inward facing layer, the outward facing layer, the closure, the first sidewall, and the insulating layer when viewed in a cross-section formed by a vertical plane extending perpendicular to a bottom surface of the insulating device. The insulated tab may extend along a length of the closure to insulate the storage compartment along the length of the closure. The first magnetic element may be positioned between the inner liner and the insulating layer, and the second magnetic element may be positioned between the lid liner and the lid insulating layer.

[0008] Still other aspects of this disclosure not according to the invention may relate to an insulating device that includes a body assembly, where the body assembly includes a bottom layer, a sidewall attached to the bottom layer, an inner liner, and an insulating layer, where at least a portion of the insulating layer is positioned between the bottom layer and the inner liner, a lid assembly rotatably connected to the body assembly, where the lid assembly includes an upper layer, a lid insulating layer, and a lid liner. A storage compartment may be formed by the body assembly and the lid assembly, where the insulating device has an open configuration providing access to the storage compartment and a closed configuration. A closure adapted to

selectively connect the body assembly and the lid assembly, and a tab, at least partially formed from a portion of the inner liner, where the tab is within the storage compartment and located inward of the closure. The tab may have a distal end positioned above a midpoint of the closure, where the tab may include a first magnetic element that engages a second magnetic element on the lid assembly when the insulating device is in the closed configuration. In some embodiments, the insulated tab may contact the lid liner on the lid assembly when the insulating device is in the closed configuration. Not according to the invention, the upper layer of the lid assembly may include perimeter edges that extend upward away from the body assembly, where the perimeter edges have an edge height defined as a vertical height from a top surface of the perimeter edges. The edge height may be at least 2 times greater than a thickness of the lid insulating layer. In another aspect of the disclosure, the upper layer may be formed from a foam rubber material. In addition, the lid assembly and the body assembly may be connected by a hinge on one side of the insulating device, wherein the hinge is formed by a second sidewall that extends from the bottom layer of the body assembly to the upper layer of the lid liner of the lid assembly. Not according to the invention, the tab may also include a portion of the insulating layer enclosed within the inner liner.

[0009] Yet other aspects of this disclosure not according to the invention may relate to an insulating device comprising a body assembly, where the body assembly includes a bottom layer, a first sidewall attached to the bottom layer, an inner liner, and an insulating layer, where at least a portion of the insulating layer is positioned between the bottom layer and the inner liner. The insulating device may also include a lid assembly rotatably connected to the body assembly, where the lid assembly includes an upper layer, a lid insulating layer, and a lid liner. The upper layer of the lid assembly may include perimeter edges that extend upward away from the body assembly, where the perimeter edges have an edge height defined as a vertical height from a top surface of the upper layer to a top of the perimeter edges, wherein the edge height is greater than a thickness of the lid insulating layer. A storage compartment may formed by the body assembly and the lid assembly, where the insulating device has an open configuration providing access to the storage compartment and a closed configuration. The insulating device may also include a closure selectively adapted to connect the body assembly and the lid assembly, where the closure is attached to the first sidewall with a connection element, where the connection element extends through the first sidewall, closure, the inner liner, and the insulating layer. An insulated tab may be formed from a portion of the inner liner and a portion of the insulating layer, where the insulated tab is arranged inward of the closure and has a distal end extending above a midpoint of the closure. The insulated tab may include a first magnetic element that engages a second magnetic element on the lid assembly when the insulating device is in the closed configuration. In another aspect of the disclosure, the closure may be a zipper assembly. Not according to the invention, the insulated tab may be formed from the inner liner, where the inner liner forms an outward facing layer of the insulated tab and an inward facing surface of the insulated tab. The insulated tab may extend along an entire length of the closure to insulate the storage compartment along the entire length of the closure.

[0010] In another aspect of the disclosure, the insulating device is a soft-sided insulated

lunchbox.

Brief Description of the Drawings

[0011] The foregoing Summary, as well as the following Detailed Description, will be better understood when considered in conjunction with the accompanying drawings in which like reference numerals refer to the same or similar elements in all of the various views in which that reference number appears.

FIG. 1 illustrates a right front perspective view of an example insulating device in a closed configuration in accordance with an aspect of the disclosure;

FIG. 2 illustrates a right front perspective view of the example insulating device of FIG. 1 in an open configuration;

FIG. 3 illustrates a front view of the example insulating device of FIG. 1;

FIG. 4 illustrates a top view of the example insulating device of FIG. 1;

FIG. 5 illustrates a rear view of the example insulating device of FIG. 1;

FIG. 6 illustrates a bottom view of the example insulating device of FIG. 1;

FIG. 7 illustrates a right side view of the example insulating device of FIG. 1;

FIG. 8 illustrates a left side view of the example insulating device of FIG. 1;

FIG. 9 illustrates a right side cross-sectional view as shown in FIG. 4; and

FIG. 10 illustrates a right side cross-sectional view as shown in FIG. 4.

Detailed Description

[0012] In the following description of the various examples and components of this disclosure, reference is made to the accompanying drawings, which form a part hereof, and in which are shown by way of illustration various example structures and environments in which aspects of the disclosure may be practiced. It is to be understood that other structures and environments may be utilized and that structural and functional modifications may be made from the specifically described structures and methods without departing from the scope of the present disclosure.

[0013] Also, while the terms "front side," "rear side," "top," " "bottom," "side," "inward," and "outward" and the like may be used in this specification to describe various example features

and elements, these terms are used herein as a matter of convenience, *e.g.,* based on the example orientations shown in the figures and/or the orientations in typical use. Nothing in this specification should be construed as requiring a specific three dimensional or spatial orientation of structures in order to fall within the scope of the claims. In addition, the reader is advised that the drawings may not be to scale.

[0014] FIGS. 1-10 depict an exemplary insulating device 100 that can be configured to keep desired contents stored cool or warm for a desired period of time. In particular, illustrated embodiment of the insulating device 100 may be a soft-sided insulated lunchbox that may be used to keep the contents secure and at an appropriate storage temperature for at least several hours. The insulating device 100 may comprise a body assembly 120, a lid assembly 140 rotatably coupled to the body assembly 120, a storage compartment 160 formed by the body assembly 120 and the lid assembly 140, and a closure 180 adapted to selectively connect the body assembly 120 and the lid assembly 140. A plurality of handles 190 may be included on the insulating device 10 for carrying, holding, or securing the insulating device 100.

[0015] The insulating device 100 may be configured to keep desired contents stored in the storage compartment 160 cool or warm for several hours. In some embodiments, the insulating device 100 may also be designed to maintain water inside the storage compartment 160 and may be configured to be water "resistant" from the outside in. In these examples, the insulating device 100 may be "water tight" such that water cannot leak into storage compartment 160 from the outside or leak out from the storage compartment 160 when the closure 180 is in the closed position.

[0016] As shown in FIGS. 1-10, the insulating device 100 may be in the shape of a cuboid or rectangular prism and have a front side 102, a rear side 104, a right side 106, a left side 108, a top side 110, and a bottom side 112. For example, the body assembly 120 may comprise bottom layer 122, first sidewall 124A, second sidewall 124B, third sidewall 124C, and sidewall 124D, along with corner members 126 connecting the adjacent sidewalls 124 to form the exterior shape of the bottom portion of the cuboid. The lid assembly 140 may comprise an upper layer 142 and an upper sidewall 144 to form the exterior shape of the upper portion of the cuboid. Other shapes are also contemplated for the insulating device 100, for example, cylindrical, spherical, conical, pyramidal, frusto-conical, frusto-spherical, frusto-pyramidal, etc. The length of the insulating device 100 may be greater than the width and the height, and the width may be greater than the height. For example, the height of the insulating device 100 may, in one embodiment, be in the range of 80 mm to 150 mm, where in one particular example may be approximately 115 mm. The length of the insulating device 100 may be in the range of 200 mm to 310 mm, where in one particular example may be approximately 260 mm. Also, the width of the insulating device 100 may, in one example, be in the range of 150 mm to 270 mm and in one specific example, the width may be approximately 210 mm. However, it is contemplated that the insulating device 100 may comprise any height, length, width and volume dimensions, without departing from the scope of these disclosures.

[0017] The storage compartment 160 of the insulating device 100 may be accessed through

the opening 162 formed at the top of the body assembly 120. An inner liner 128 of the body assembly 120 may form an interior surface of the storage compartment while a lid liner 146 may form the interior surface of the lid assembly 140. As will be discussed in more detail later, a lid insulating layer 148 may be positioned between the upper layer 142 and the lid liner 146, and an insulating layer 130 may be positioned between the sidewall 124 and the inner liner 128 and/or also positioned between the bottom layer 122 and the inner liner 128.

[0018] The body assembly 120 may also include a plurality of handles 190. The handles 190 may be positioned on multiple sides of the body assembly 120. For instance, in the exemplary embodiment, the handles 190 may include a front handle 192 arranged on the front side 102, a right side handle 194 on the right side 106, and a left side handle 196 on the left side. The handles 190 may be attached using connection elements 198 such as stitching using threads, however these threads attaching the handles 190 may not, in some examples, extend into the insulating layer 130 or inner liner 128. The multiple handles 190 (192, 194, 196) provide a user with options for grasping for grasping and carrying the insulating device. In addition, a web loop 202 may be arranged on either end or both ends of the front handle 192 for attaching various items, (e.g., carabineers, storage cases, etc.). In some embodiments, the handles 190 and web loops 202 may be arranged anywhere on the body assembly 120 or the lid assembly 140. The handles 190 and web loops 202 may be constructed of nylon webbing. As alternate options, the handles 190 and web loops 202 may be formed from polypropylene, neoprene, polyester, Dyneema, Kevlar, cotton fabric, leather, plastics, rubber, or rope. The handles 190 and web loops 202 may be attached to the body assembly 120 by stitching, adhesive, or polymer welding. In some embodiments, the handles 190 and web loops 202 may be stitched to patches using threads, where the patches are then attached to the insulating device 100.

[0019] The insulating device 100 may also include pockets, tie downs, and D-rings anywhere on the external surface of the outer shell. The pockets can be sized for receiving keys, phones, wallets, etc. and may be formed waterproof. The pockets may also include a waterproof zipper to prevent the contents therein from getting wet.

[0020] As shown in the cross-sectional views of FIGS. 9 and 10, the body assembly 120 may comprise an inner liner 128 that encloses an insulating layer 130. For clarity, the handles 190 are removed from the cross-sectional views of FIGS. 9 and 10. In one example, as shown in FIG. 9, the inner liner 128 may be formed from one or more sidewall inner liners 128A and a bottom inner liner 128B. The one or more sidewall inner liners 128A may be secured together and to the bottom inner liner 128B with a lap joint using a polymer welding technique. Polymer welding may include both external and internal methods. External or thermal methods can include hot gas welding, hot wedge welding, hot plate welding, infrared welding and laser welding. Internal methods may include mechanical and electromagnetical welds. Mechanical methods may include spine welding, stir welding, vibration welding, and ultrasonic welding. Electromagnetical methods may include resistance, implant, electrofusion welding, induction welding, dielectric welding, RF (Radio Frequency) welding, and microwave welding. The welding can be conducted in a flat or horizontal plane to maximize the effectiveness of the polymer welding to the construction materials. Optionally, the liners 128A, 128B may be

secured or joined together using a tape, such as a TPU tape can be placed over the seams to form the storage compartment 160.

[0021] The insulating layer 130 may be located between the inner liner 128 and the outer sidewalls 124, and may be formed as an insulator to assist in maintaining the internal temperature of the storage compartment 160. In one example, the insulating layer 130 can be a free-floating layer that is not attached directly to the outer sidewalls or bottom layer 122. The insulating layer 130 may be formed as one or more sidewall insulating portions 130A and a bottom insulating portion 130B. The one or more sidewall insulating portions 130A and the bottom insulating portion 130B may be formed from an insulating foam material as will be described in further detail below. The one or more sidewall insulating layers 130A may be a closed cell foam and may have a thickness within a range of 2 mm and 6 mm, or approximately 4 mm. The bottom insulating layer 130B may be a closed cell foam and may have a thickness within a range between 4 mm and 8 mm, or approximately 6 mm. In one example, the insulating layer 130 may be formed of vinyl nitrate (NBR/PVC blend) or any other suitable blend.

[0022] In addition, an insulated tab 132 may be formed from a portion of the inner liner 128A and a portion of the insulation layer 130A to improve the overall insulating performance of the insulating device 100. As shown in FIGS. 2, 9, and 10, insulated tab 132 may be arranged inward or behind the closure 180 to provide a thermal retention member behind the closure 180. Insulated tab 132 may extend upward from a base end 133 at a connection region 139 where a lower end of the closure is attached to the sidewall 124 to a distal end that may be positioned at or above a midpoint of the closure 180 in a vertical direction. The midpoint of the closure 180 being defined as the location where the closure 180 divides between a portion attached to the body assembly 120 and a portion attached to the lid assembly 140. In some instances, the distal end 135 of the insulated tab 132 may contact the lid liner 146 of the lid assembly 140 when the insulating device 100 is in the closed configuration. In some embodiments, the lid liner 146 and the insulated tab 132 may include complementary surfaces that form an interlocking feature to secure the insulated tab 132 to the lid liner 146 to improve the insulating performance of the insulating device 100. The interlocking feature may include a groove in the liner 146 that receives a top surface of the insulated tab 132. The insulated tab 132 may also extend continuously along a majority or along the entire length of the closure 180 to help insulate the storage compartment 160 along the length of the closure 180. In other words, the insulated tab 132 may extend continuously around the sides 106, 108, the front side 102, and a portion of the rear side 104 where insulated tab 132 may have ends that are adjacent to or connect to the hinge 138.

[0023] The insulated tab 132 may be formed from a portion the inner liner 128A and the insulated layer 130A, where the inner liner 128A may form an outward facing layer 136 and an inward facing layer 137 of the insulated tab 132. The inner liner 128 may extend around a portion of the insulating layer 130A from the outward facing layer 136 to the inward facing layer 137 and connect to the closure at a base end 135. As shown in FIGS. 9 and 10, the insulated tab 132 may be connected to the closure 180 along connection region 139 at the base

end.135 via a connection element 198 that extends through the outward facing layer 136, the inward facing layer 137, the closure 180, a sidewall 124, and the insulating layer 130A when viewed in a cross-section formed by a vertical plane extending perpendicular to a bottom surface of the insulating device 100. In some embodiments, the insulated tab 132 may extend from the lid liner 146 where the base end is connected or formed from the lid liner 146 and has a distal end that may be positioned at or below a midpoint of the closure 180 in a vertical direction.

[0024] Alternatively, the insulated tab 132 may be formed as a separate component having a liner and a separate insulating layer that can be attached to the lid assembly 140 or attached to the body assembly 120. For instance, the separately formed insulated tab 132 may have a base end connected to the inner sidewall liner 128A and a distal end that may be positioned at or above a midpoint of the closure 180 in a vertical direction. As another option, the separately formed insulated tab 132 may have a base end connected to the lid liner 146 and a distal end that may be positioned at or below a midpoint of the closure 180 in a vertical direction. Still as another option, the separately formed insulated tab 132 may be attached to the closure 180 (such as attached backing or fabric 182) such that a first end of the insulated tab 132 may be attached on one side of the midpoint of the closure 180 and the insulated tab extends across the midpoint to the opposite side of the closure 180. Similar to the integrally formed insulated tab 132 described above, in the embodiments having a separately formed insulated tab 132, the tab 132 may also extend along a majority or along the entire length of the closure 180. The tab 132 may be attached at the ends to the hinge 138 and extend around the sides 106, 108, the front side 102, and a portion of the rear side 104, where insulated tab 132 may have ends that are adjacent to or connect to the hinge 138.

[0025] As discussed above, the body assembly 120 may comprise bottom layer 122, first sidewall 124A, second sidewall 124B, third sidewall 124C, and sidewall 124D, along with corner members 126 connecting the adjacent sidewalls 124 to form the exterior shape of the bottom portion of the cuboid. The sidewalls 124 and corner members 126 may be formed from multiple pieces and may be joined together with lap joints and secured together with connection elements 198 such as stitching, or attached using any known method, e.g., polymer welding, stitching, or other adhesive. The sidewalls 124 and corner members 126 may provide the exterior covering for the insulating device 100. As discussed above, the insulating layer 130 can be suspended freely within the body assembly 120. Alternatively, the insulating layer(s) 130 could also be secured or formed as a one-piece integral structure.

[0026] The bottom layer 122 may increase the insulation and the structural integrity of the insulating device 100. The bottom layer 122 may also provide additional protection around the bottom of the insulating device 100. The bottom layer 122 may have perimeter edges 123 that extend upward towards the lid assembly 140. In one example, the bottom layer 122 may be formed from EVA foam. The bottom layer 122 may also include a design such as a logo or name that can be molded or embossed directly into the material. The bottom layer 122 may be attached to the sidewalls 124 and corner members 126 by connection elements 198, such as stitching or other known methods.

[0027] The lid assembly 140 may include an upper layer 142, an upper sidewall 144, and a lid liner 146. The lid assembly 140 may be generally rectangular in shape and include perimeter edges 150 that extend upward away from the body assembly 120. These upward extending perimeter edges 150 may have a height that provides a user with a member that is easily gripped by a hand of the user to assist when opening and closing the closure 180. The perimeter edges 150 may have an edge height defined as a vertical height from a top surface 152 of the upper layer 142 to a top of the perimeter edges 150, where the edge height may be greater than a thickness of the lid insulating layer 148. In some embodiments, the edge height may be at least 2 times greater than the thickness of the lid insulating layer 148. The edge height may be approximately 18 mm, or within a range of 15 mm and 21 mm, or within a range of 12 mm and 24 mm. In other embodiments, the edge height may have an edge height of approximately 15 percent of a total height of the insulating device 100, or within a range of 13 percent and 17 percent of the total height of the insulating device 100, or within a range of 10 percent and 20 percent of the total height of the insulating device 100. The perimeter edges 150 may have a constant height of may have a variable height where a region of the perimeter edges is taller than an adjacent region. In some embodiments, the perimeter edges 150 may have an engaging or receiving member that could receive or secure accessories such as a bottle opener, or utensils. In addition, the upper layer 142 of the lid assembly 140 may have a pocket formed on the top surface, where the perimeter edges 150 may form a portion of the sides of the pocket where the pocket may be connected directly to the perimeter edges 150.

[0028] The sidewall 144 may be attached to the perimeter edges 150 around by a connection element like stitching. Optionally, the upper sidewall 144 may be attached to the perimeter edges 150 with an RF weld joint or other types of securing methods could be used such as other forms of welding, stitching, adhesives, rivets, etc. An edge member 154 may extend along an entire length of the perimeter edges 150 of the lid assembly 140 where the edge member 154 may be also attached to the upper layer 142 and upper sidewall 144 by connection elements 198, such as stitching or other means known to own skilled in the art.

[0029] The sidewalls 144 may be formed from multiple pieces and may be joined together with lap joints and secured together with connection elements 198 such as stitching, or attached using any known method, e.g., polymer welding, stitching, or other adhesive. The edge member 154 may be formed from a single nylon webbing piece or be formed from a plurality of webbing pieces. The insulating layer 148 may be suspended freely within the lid assembly 140 positioned between the upper layer 142 and the lid liner 146. Alternatively, the insulating layer(s) 148 could also be secured or formed as a one-piece integral structure. As another option, the lid liner 146 may be formed as a separate component and attached along the interior edges of the lid assembly 140. In addition, the lid liner 146 may further include a pocket or other retaining member, where the pocket may be configured to hold utensils, a portable ice pack, or other items.

[0030] The upper layer 142 may increase the insulation and the structural integrity of the insulating device 100. The upper layer 142 may also provide additional protection around the

top of the insulating device 100. In one embodiment, the upper layer 142 may be formed from a foam rubber, such as ethylene-vinyl acetate (EVA) foam or similar material. The upper layer 142 may also include a design such as a logo or name that can be molded or embossed directly into the material.

[0031] The lid insulating layer 148 may be formed of a single layer of foam, which corresponds to the overall shape of the lid assembly 140. The foam may, in one example, be an insulating foam, as discussed herein, which may be the same foam as is used in the body assembly 120, and be unattached to and floating between the lid liner 146 and the upper sidewall 144.

[0032] In some embodiments, the liners 128, 146 may be constructed from double laminated TPU nylon fabric. The sidewalls 124 and upper sidewall 144 may be formed from a polyester fabric that is laminated with an ether TPU on Poly 600D Fabric Single Side Laminated Ether TPU on at least one side of the fabric. The laminated fabric forming the liners and sidewalls may be waterproof and have an antimicrobial additive or coating that meets all Food and Drug Administration requirements. In addition, the fabrics used to construct the insulating device may all have antimicrobial materials incorporated to create a mildew-free environment that is food contact surface safe. In one specific example, the nylon can be 840d nylon with TPU. Alternative materials used to manufacture the inner liner 128, lid liner 146, sidewalls 124, and upper sidewall 144 may be PVC, TPU coated nylon, coated fabrics, and other weldable and waterproof fabrics.

[0033] Additionally, as shown the cross-sectional views of FIGS. 9 and 10, the lid assembly 140 may be connected to the body assembly 120 on one side of the insulating device 100, which forms a living hinge 138. In the exemplary embodiment, the living hinge 138 may be formed by the sidewall 124D on a rear side 104 of the insulating device 100. The sidewall 124D may have a greater height than the other sidewalls 124. The sidewall 124D may connect to the bottom layer 122 of the body assembly 120 and extend upward and connect to the upper layer 142 of the lid assembly. The living hinge 138 may also be reinforced by an inner piece of fabric material. In some embodiments, a portion of the inner liner 128D may reinforce the living hinge 138, such that the inner liner 128D may extend upward from the storage compartment 160 and attach to the upper layer 142 between the upper layer 142 and the sidewall 124D. By using the living hinge 138, the storage compartment 160 may and its contents may be accessed by opening the closure 180 and rotating or folding back the lid assembly 140 along the living hinge 138.

[0034] As discussed above, the closure 180 may be selectively connected to the body assembly 120 and the lid assembly 140. The closure 180 may be attached to the sidewalls 124 using connection elements 198, where the connection elements 198 may be stitching with threads. In particular, the closure 180 may be attached to at least one of the sidewalls 124 with a connection elements 198, where the connection elements 198 extends through a sidewall 124, the closure 180, the inner liner 128, and the insulating layer 130 when viewed in a cross-section formed by a vertical plane extending perpendicular to a bottom surface of the insulating device as shown in FIGS. 9 and 10. Similarly, along the corners of the insulating device 100,

the closure 180 may be attached to at least one of the corner members 126 with connection elements 198, where the connection elements 198 extends through a corner member 126, the closure 180, the inner liner 128, and the insulating layer 130. The closure 180 may be opened to allow access to the storage compartment 160 or closed to prevent access to the storage compartment 160. The closure 180 may be a zipper assembly as shown in FIGS. 1-10, but may be other sealing devices. For example, the closure 180 may be a hook and loop type fastener (i.e. Velcro), snaps, buckles, excess material that is folded multiple times to form a seal such as a roll-down seal, seals, metal or plastic clamps and combinations thereof could be used as a closure mechanism.

[0035] The closure 180 may extend around the entire perimeter or a majority of the perimeter of the insulating device 100, such as at least three sides of the insulating device 100. In this particular example, the contents of the insulating device 100 may be easily accessed by the user after the closure 180 is opened and the lid assembly 140 is rotated away from the body assembly 120 along hinge 138 as shown in FIG. 2.

[0036] The closure 180 may be mounted on a backing or fabric 182, which is included as a portion of the closure 180 as described herein. In the case of a zipper, this can be referred to as zipper tape 182. The zipper tape 182 may be attached between each sidewall 124 and the inner liner 128 on the body assembly 120 and may be attached between the upper sidewall 144 and the lid liner 146 on the lid assembly 140. In addition, as described above, where the connection element 198 extends through the closure 180 may be interpreted as the connection element extending through the fabric or zipper tape 182.

[0037] As discussed above, the storage compartment may include an insulated tab 132 that extends along the length of the closure 180, where the insulated tab 132 also extends upward beyond the midpoint of the closure 180. In some embodiments, the insulated tab 132 may include a magnetic element 134 secured within the insulated tab 132. The magnetic element 134 may be positioned along an upper region of the tab 132 such that the magnetic element 134 may engage a magnetic element 156 that is secured within the lid assembly 140. The attractive forces of the magnetic elements 134 and 156 may cause the lid liner 146 to contact the portion of the inner liner 128 forming the exterior surface of the insulated tab 132 when the insulating device is in its closed configuration. In addition, the magnetic forces may help keep the insulated tab 132 elevated an in its proper position when the insulating device 100 is in its closed configuration, thereby helping to further minimize any temperature increase or decrease within the storage compartment. Magnetic element 134 may be secured within the insulated tab 132 between the inner liner 128 and the insulating layer portion 130A. Similarly, magnetic element 156 may be positioned between the lid liner 146 and the lid insulating layer 148. In some embodiments, the magnetic elements 134, 156 may be secured under the respective liners 128, 146 such that they are not visible when the insulating device 100 is in its open configuration, while in other embodiments, the magnetic elements 134, 156 may be positioned in pockets or bosses (not shown) in the insulated tab 132 and lid liner 146 that protrude above the surface of the insulated tab 132 and lid liner 146. The magnetic elements 134, 156 may be secured in place using an adhesive, welding, or other technique known to

one skilled in the art.

[0038] The magnetic elements 134, 156 may have their center points substantially aligned with each other to maximize their attractive force to one another. Additionally, in some embodiments the insulating device may comprise one pair of magnetic elements positioned along a center plane of the front side 102 of the insulating device 100. In other embodiments, the insulating device may include multiple pairs of magnetic elements positioned along the length of the insulated tab 132 and in corresponding positions on the lid assembly 140.

[0039] The magnetic elements 134, 156 may have any shape and size, and in some instances each magnetic element 134, 156 may be the same size, while in other embodiments, the magnetic elements may have different sizes. For example, in the exemplary embodiment, the magnetic elements 134, 156 may have a rectangular shape with a length of approximately 25 mm, a width of approximately 5 mm and a thickness of approximately 2 mm. The magnetic elements 134, 156 may be one or more of permanent magnets, metal strips, or ferromagnetic materials.

[0040] The present invention is disclosed above and in the accompanying drawings with reference to a variety of examples. The purpose served by the disclosure, however, is to provide examples of the various features and concepts related to the invention, not to limit the scope of the invention. One skilled in the relevant art will recognize that numerous variations and modifications may be made to the examples described above without departing from the scope of the present invention.

REFERENCES CITED IN THE DESCRIPTION

Cited references

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Patent documents cited in the description

- US68512419 **[0001]**
- US2017036844A1 **[0004]**
- US2005072181A1 **[0004]**

- US2004035143A1 **[0004]**

Patentkrav

1. Isolerende anordning (100), der omfatter:
en kropskonstruktion (120), hvor kropskonstruktionen (120) indbefatter et bundlag (122), en første sidevæg (124A), der er fastgjort til bundlaget (122), en indvendig foring (128) og et isolerende lag (148), hvor i det mindste en del af det isolerende lag (148) er placeret mellem den første sidevæg (124A) og den indvendige foring (128);
en lågkonstruktion (140), der er drejeligt forbundet til kropskonstruktionen (120); hvor lågkonstruktionen (140) indbefatter et øvre lag (142), et lågisoleringslag (148) og en lågforing (146);
et opbevaringsrum (160), der er dannet af kropskonstruktionen (120), og lågkonstruktionen (140), hvor den isolerende anordning (100) har en åben konfiguration, der giver adgang til opbevaringsrummet (160), og en lukket konfiguration, der forhindrer adgang til opbevaringsrummet (160);
en lukning (180), der er placeret mellem kropskonstruktionen (120) og lågkonstruktionen (140), hvor lukningen (180) er tilpasset til selektivt at forbinde kropskonstruktionen (120) og lågkonstruktionen (140); kendetegnet ved, at,
en isoleret flig (132), der er dannet af en del af den indvendige foring (128) og en del af det isolerende lag (148), hvor den isolerede flig (132) er inde i opbevaringsrummet (160) og indad for lukningen (180) og har en distal ende, der er placeret over et midtpunkt af lukningen (180), hvor midtpunktet af lukningen (180) er det sted, hvor lukningen (180) deler sig mellem en del, der er fastgjort til kropskonstruktionen (120), og en del, der er fastgjort til lågkonstruktionen (140), hvor den isolerede flig (132) indbefatter et første magnetisk element (134), som går i indgreb med et andet magnetisk element (156) på lågkonstruktionen (140), når den isolerende anordning (100) er i den lukkede konfiguration.

2. Isolerende anordning ifølge krav 1, hvor lågkonstruktionen (140) indbefatter perimeterkanter (150), der strækker sig opad væk fra kropskonstruktionen (120).

3. Isolerende anordning ifølge krav 2, hvor perimeterkanterne (150) har en kanthøjde, der er defineret som en lodret højde fra en topflade (152) af perimeterkanterne (150) til en topflade af det øvre lag (142), hvor kanthøjden er mindst 2 gange større end en tykkelse af lågisoleringslaget (148).

4. Isolerende anordning ifølge krav 2, hvor perimeterkanterne (150) har en kanthøjde, der er defineret som en lodret højde fra en topflade (150) af perimeterkanterne (150) til en topflade af det øvre lag (142), hvor kanthøjden er inden for et område på 10 procent og 20 procent af en total højde af den isolerende anordning (100).

5. Isolerende anordning ifølge krav 1, hvor lukningen (180) er fastgjort til den første sidevæg (124A) med et forbindelseselement (198), hvor forbindelseselementet (198) strækker sig gennem lukningen (180), den første sidevæg (124A), den indvendige foring (128) og isoleringen (148), som er set i et tværsnit, der er dannet af et lodret plan, der strækker sig vinkelret på en bundoverflade af den isolerende anordning (100).

6. Isolerende anordning ifølge krav 1, hvor den isolerede flig (132) er dannet af en del af den indvendige foring (128), hvor den indvendige foring (128) danner et udadvendende lag (136) af den isolerede flig (132) og et indadvendende lag (137) af den isolerede flig (132).

7. Isolerende anordning ifølge krav 6, hvor den indvendige foring (128) strækker sig rundt om det isolerende lag (148) fra det indadvendende lag (137) til det udadvendende lag (136), hvor den isolerede flig (132) er forbundet til lukningen (180) ved en basisende (135).

8. Isolerende anordning ifølge krav 7, hvor den isolerede flig (132) er forbundet til lukningen (180) ved basisenden (135) via et forbindelseselement (198), der strækker sig gennem det indadvendende lag (137), det udadvendende lag (136), lukningen

(180), den første sidevæg (124A) og det isolerende lag (148), som er set i et tværsnit, der er dannet af et lodret plan, der strækker sig vinkelret på en bundoverflade af den isolerende anordning (100).

9. Isolerende anordning ifølge krav 1, hvor den isolerede flig (132) strækker sig langs en længde af lukningen (180) for at isolere opbevaringsrummet (160) langs længden af lukningen (180).

10. Isolerende anordning ifølge krav 1, hvor det første magnetiske element (134) er placeret mellem den indvendige foring (128) og det isolerende lag (148), hvor det andet magnetiske element (156) er placeret mellem lågforingen (146) og lågisoleringslaget (148).

11. Isolerende anordning ifølge krav 1, hvor den isolerede flig (132) er i kontakt med lågforingen (146) på lågkonstruktionen (140), når den isolerende anordning (100) er i den lukkede konfiguration.

12. Isolerende anordning ifølge krav 1, hvor det øvre lag (142) er dannet af et skumgummimateriale.

13. Isolerende anordning ifølge krav 1, hvor lågkonstruktionen (140) og kropskonstruktionen (120) er forbundet med et hængsel (138) på den ene side af den isolerende anordning (100), hvor hængslet (138) er dannet af en anden sidevæg (124B), der strækker sig fra bundlaget (122) af kropskonstruktionen (120) til det øvre lag (142) af lågforingen (146) af lågkonstruktionen (140).

14. Isolerende anordning ifølge krav 1, hvor lukningen (180) er en lynlåsanordning.

15. Isolerende anordning ifølge krav 1, hvor den isolerende anordning (100) er en isoleret madkasse med blød side.

DRAWINGS

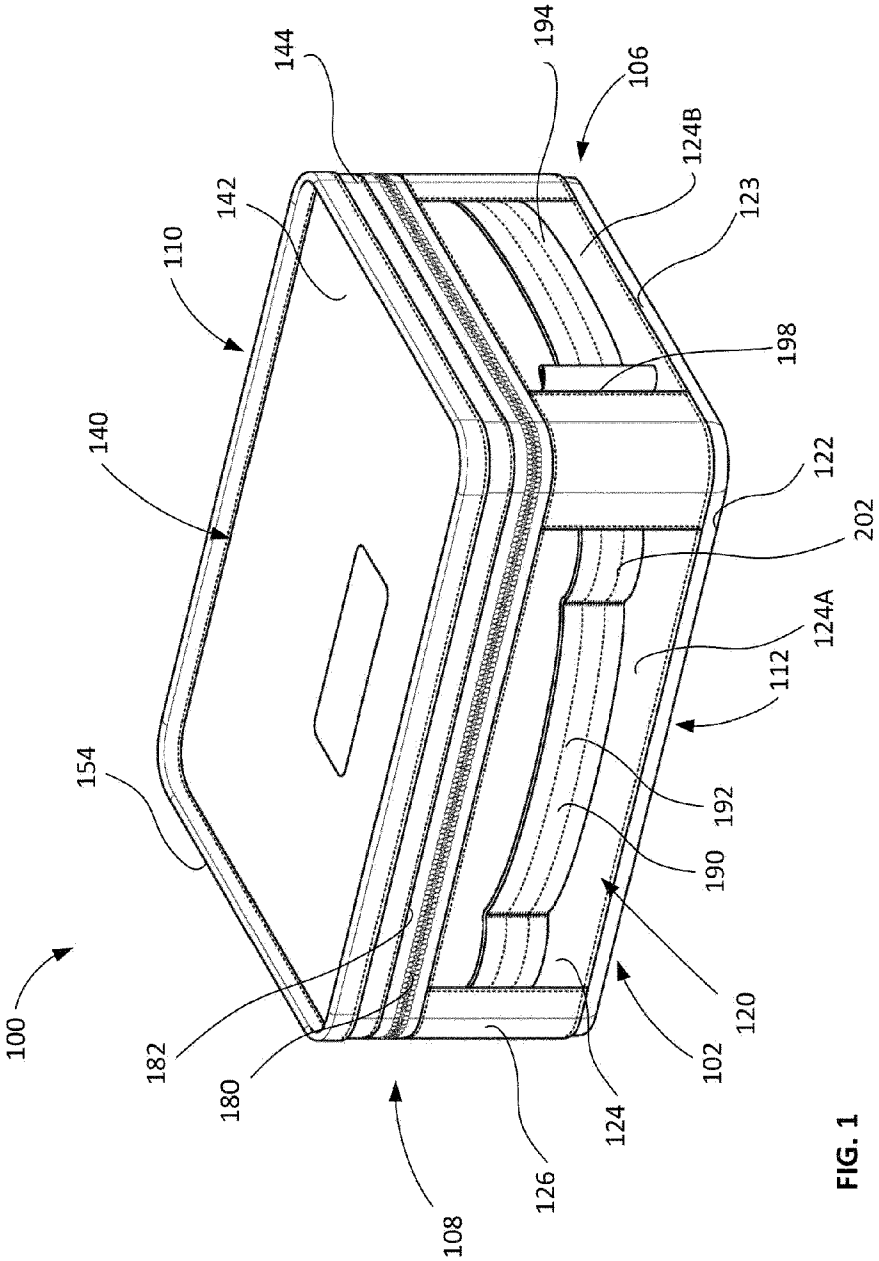
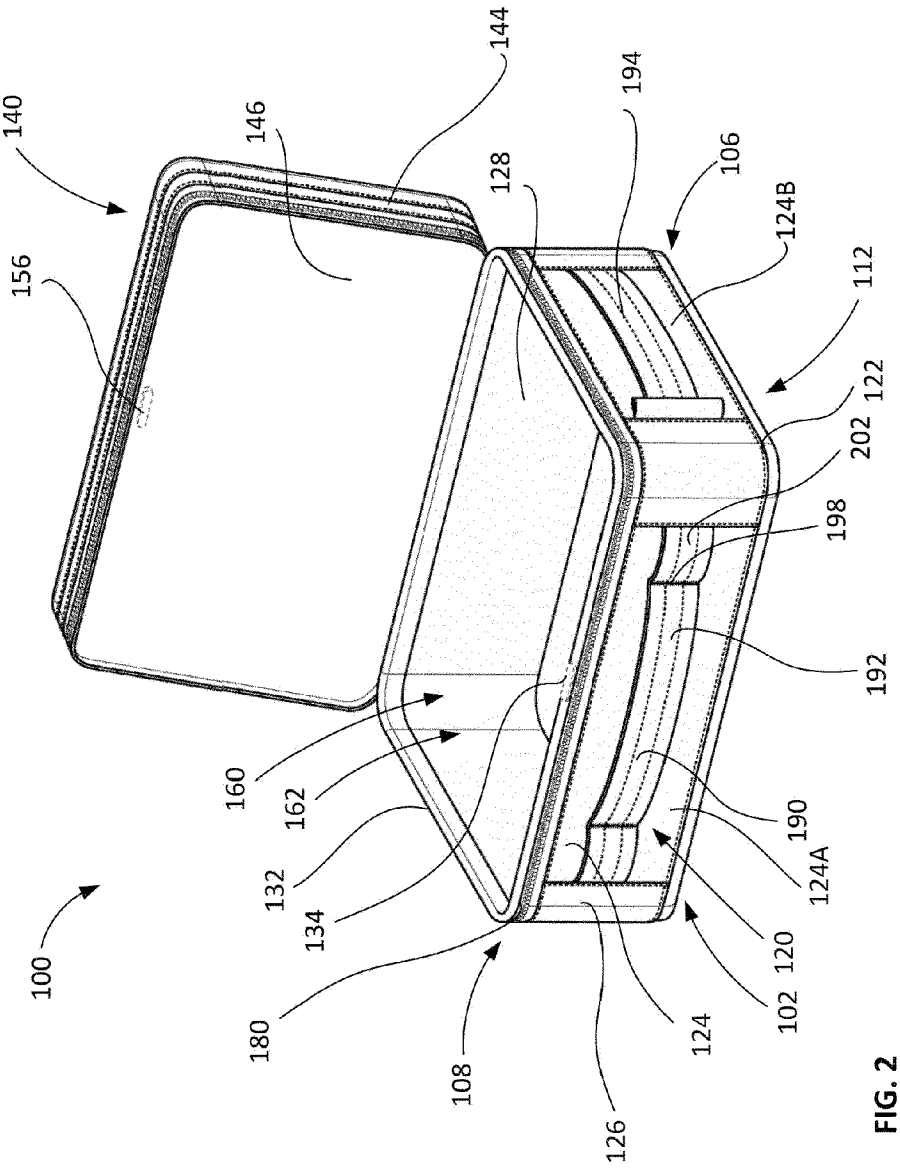


FIG. 1


140
146
144
194
106
128
124B
112
156
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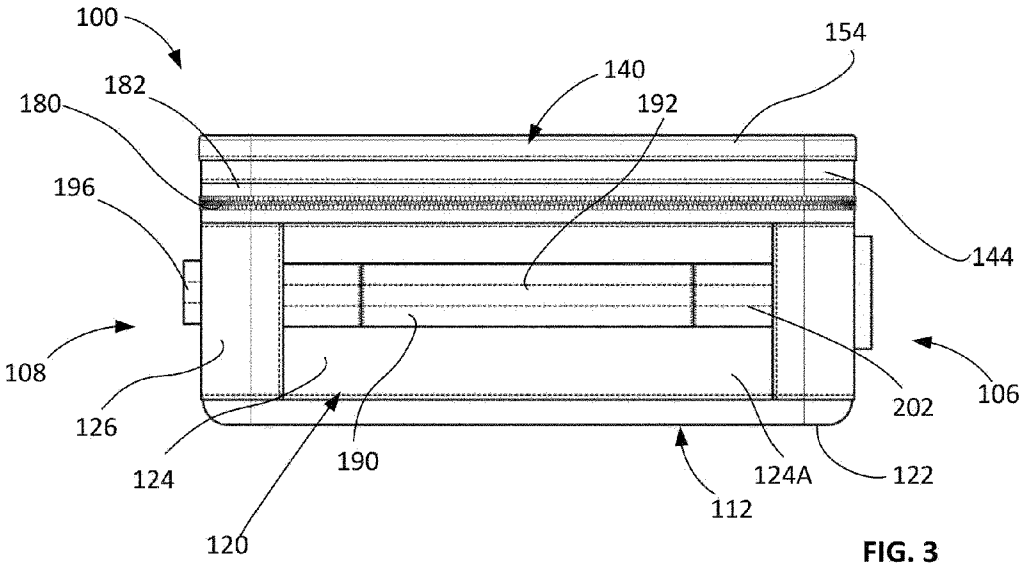
132
134
190
124A
120
102
100
180
108
124
126

FIG. 2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108
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154
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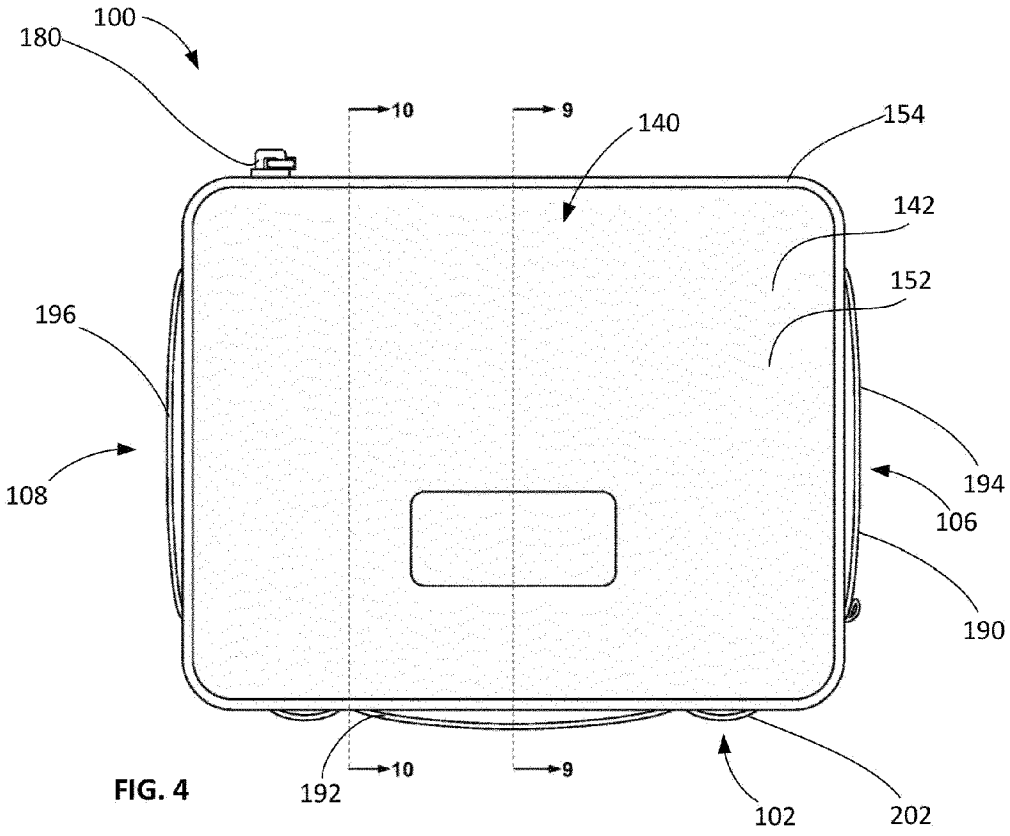
124A
122
112

FIG. 3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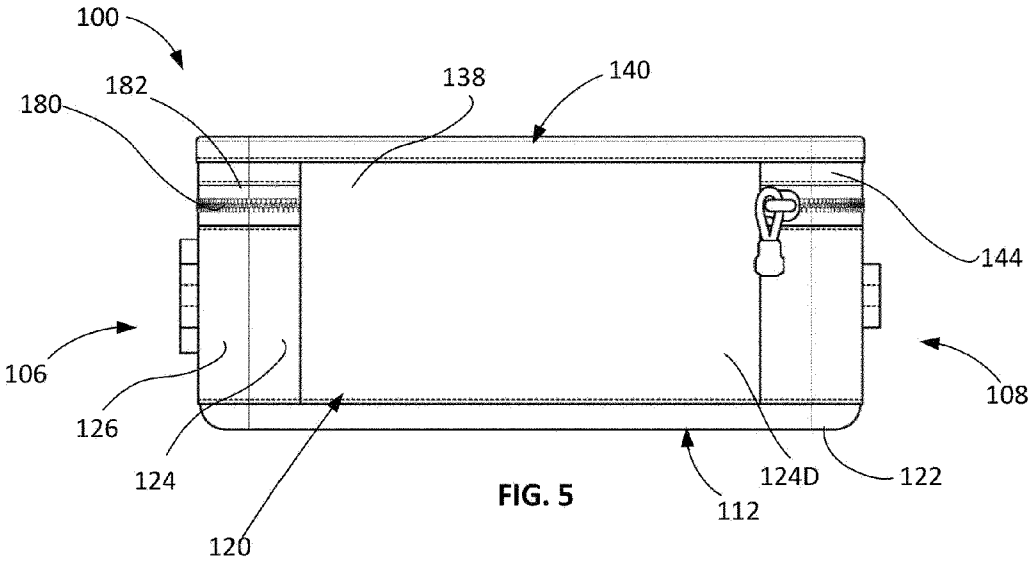
202

FIG. 4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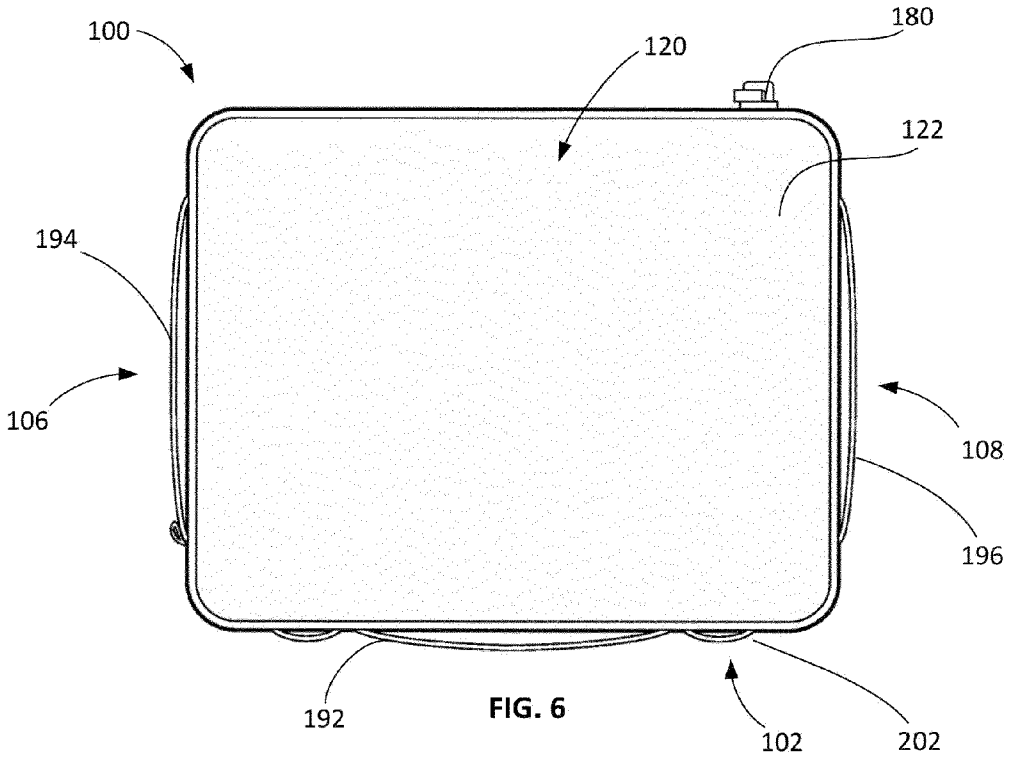
138
140
144
106
108
126
124
120
124D
122
112

FIG. 5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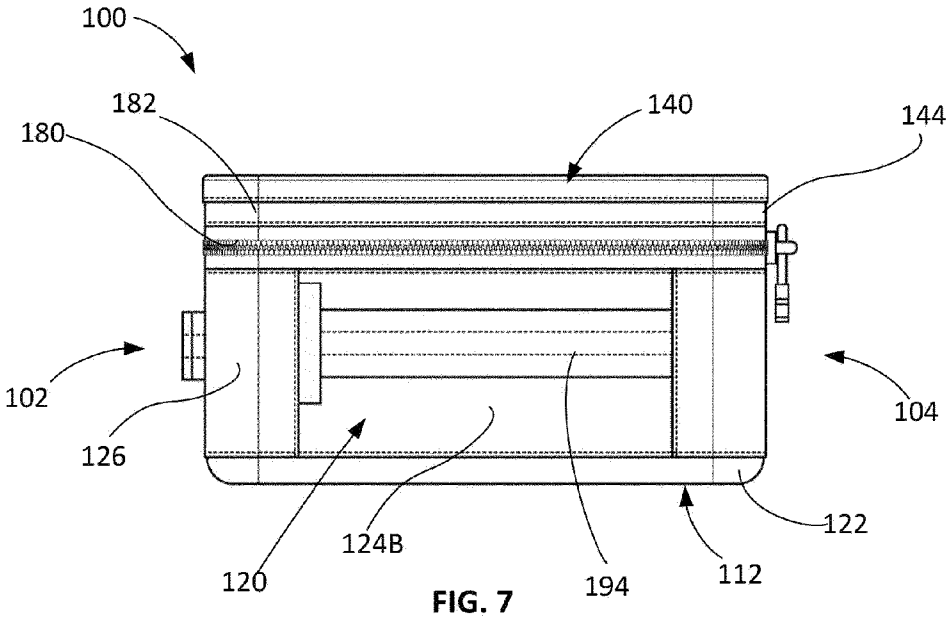
202

FIG. 6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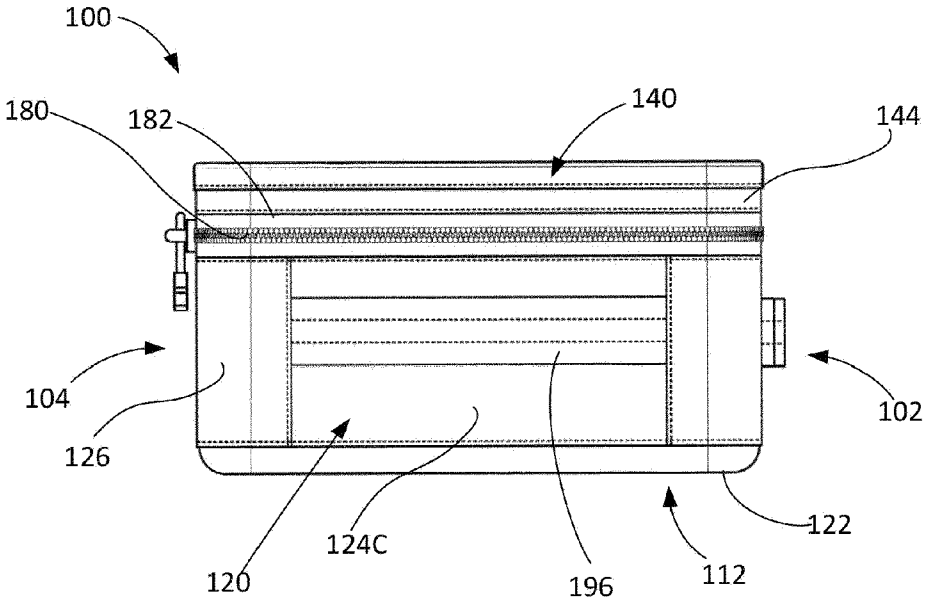
124B
194
112
122

FIG. 7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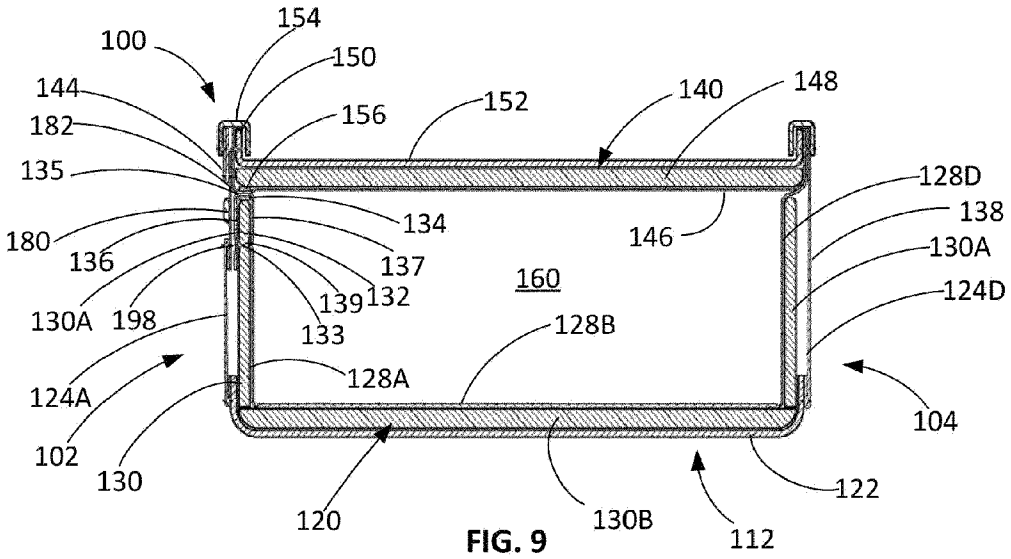
140
144
104
102
126
120
124C
196
112
122

FIG. 8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152
140
148
182
156
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128D
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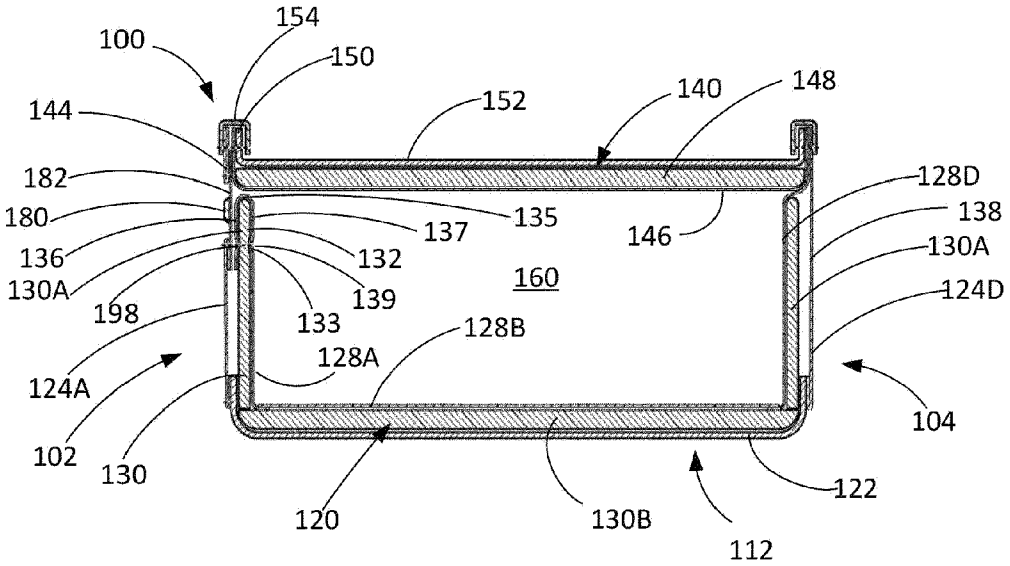
134
146
180
136
137
160
130A
124D
139
132
130A
198
133
128B
124A
128A
104
102
130
122
120
130B
112

FIG. 9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152
140
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136
132
130A
160
130A
139
124D
198
133
128B
124A
128A
104
102
130
122
120
130B
112

FIG. 10