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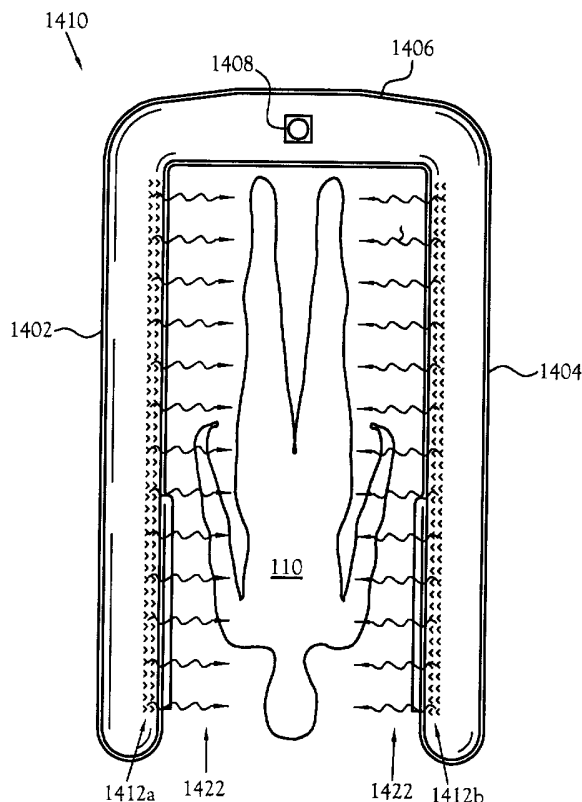
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[Continued on next page]

(54) Title: CONVECTIVE HEAT THERAPY DEVICE



(57) Abstract: A therapy device for providing heated air to the body of a patient through a plurality of V-shaped slits. The therapy device is an inflatable tube. A heated air supply is connected to the tube and the heated air inflates the tube and is forced out of the exhaust ports. The exhaust ports are V-shaped slits. The method of fabricating the therapy device includes forming the individual pieces, attaching the tube sheets to form a tube, lancing the tube to form exhaust ports, and attaching the remaining pieces.



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TITLE OF INVENTION

Convective Heat Therapy Device

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a Continuation-In-Part of Serial Number
5 09/916,353, filed on July 27, 2001, and Serial Number 10/126,716, filed April
19, 2002.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR
DEVELOPMENT

[0002] Not Applicable

BACKGROUND OF THE INVENTION

1. Field of Invention

[0003] This invention relates to the field of heat therapy. More specifically,
the present invention relates to a therapy device having exhaust ports for
supplying a controlled temperature air to a patient's body surface.

2. Description of the Related Art

[0004] During and after a surgical procedure, it is well known that the loss
of body temperature by the patient can lead to hypothermia. Accordingly, it is
well known to apply heat to the patient in order to replace the heat that is lost.
While heat loss associated with surgery is discussed herein, it is well known that
20 hypothermia is also caused by other circumstances, such as prolonged exposure
to extreme cold. No matter what the cause of hypothermia, it is essential to
apply heat to the patient in order to either prevent or overcome hypothermia.

[0005] One method for applying heat to a patient is by directing warm air
toward the patient. Of specific interest is a generally U-shaped hollow tubular
25 member through which heated air is supplied. Typical of the art are those
devices disclosed in U.S. Letters Patent Nos. 5,165,400, titled "Convective
Hyperthermia Article," issued to Berke on November 24, 1992; and 5,300,101,
titled "Method and Apparatus for Treatment of Pediatric Hypothermia," issued to
Augustine, et al., on April 5, 1994.

[0006] The '400 device disclosed by Berke is a U-shaped device having two substantially parallel legs positioned adjacent to and extending a substantial length of a patient's body. The '400 device has a tubular cross-piece connecting the two legs, through which heated air is directed by a heat source. The '400 device includes an upper layer of material and a lower layer of material that are joined together at fold lines along side seams to provide a tubular leg through which heated air is directed. Through the inner surface area of the legs and the cross-piece, a multitude of discrete, uniformly spaced, air holes are punched entirely through the upper and lower layers of material along a side seam for flow of heated air through each discrete air hole. Each air hole provides a stream of heated air that is ejected from each hole at a rate depending on the diameter of each hole and the rate of pumping of the heated air through each tubular leg.

[0007] The '101 device disclosed by Augustine is a device similar to that disclosed in the '400 patent, except that the device fits an infant or small child and includes coverings that are attachable along the length of the inflatable body. The device includes a multitude of apertures for the ejection of air, with the apertures extending entirely through an underside layer and an upper layer of material having a stratum of absorbent tissue paper prelaminated with a layer of heat-sealable plastic bonded thereto.

BRIEF SUMMARY OF THE INVENTION

[0008] The therapy device exhausts heated air towards the patient through orifices, or exhaust ports, in the therapy device. The orifices are slits cut into the wall of the therapy device at locations where the exhausting air will be directed toward the patient. In one embodiment, the slits are v-shaped cuts with the v-shaped cut aimed in the direction of a circumference of the inflated therapy device. According to various embodiments of the present invention, the therapy device can define a full-body therapy device that extends from the patient's feet to past the crown of the patient's head, or a partial body therapy device for exhausting air proximate selected portions of the patient's body. A sheet can be placed over the patient and the therapy device to contain the heated air around the patient.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0009] The above-mentioned features of the invention will become more clearly understood from the following detailed description of the invention read together with the drawings in which:

- 5 Figure 1 is a top view of a patient with the therapy device inflated and in place;
- Figure 2 is a perspective view of the therapy device;
- Figure 3 is a top view of the therapy device;
- Figure 4 is a top view of another embodiment of the therapy device;
- 10 Figure 5 is an exploded view of the therapy device;
- Figure 6 is a perspective view of one panel of one embodiment the device;
- Figure 7 is a perspective view of the embodiment illustrated in Figure 6;
- Figure 8 is a block diagram of the fabrication method steps;
- 15 Figure 9 is a top view of a patient with an inflated therapy device having extended arms;
- Figure 10 is a top view of the therapy device having extended arms;
- Figure 11a is a top view of a therapy device with a second crosspiece;
- Figure 11b is a perspective view of the therapy device with a second crosspiece;
- 20 Figure 12 is a perspective view of a straight slit;
- Figure 13 is a perspective view of a triangular slit;
- Figure 14 is a top view of a patient with a full-body therapy device;
- Figure 15 is a perspective view of an inflated full-body therapy device; and
- Figure 16 is an exploded view of the full-body therapy device.

DETAILED DESCRIPTION OF THE INVENTION

[0010] An apparatus for convective heat therapy and a method of making and using the device is disclosed. The therapy device is generally referred to in the figures as item **10**, **910**, **1010**, **1110**, and **1410**. Referring to Figure 1, one embodiment of the therapy device **10** provides warm air to the upper portion of a patient's body **110**. A base sheet **104** is placed under the head and shoulders of the patient **110**, who is lying on a table or bed **114**. The therapy device **10** is connected to a supply hose **112** from a heated air supply (not illustrated). When air is pumped into the therapy device **10**, the tube **102** inflates, and heated air is exhausted in a thermal warming zone surrounding a portion of the patient's body **110**. A cover sheet **106** prevents the heated air from immediately escaping and is attached **107** to one leg of the tube **102**. The cover sheet **106** is positioned over the head of the patient **110** and placed on top of the tube **102**.

[0011] Figure 2 illustrates a perspective view of an inflated therapy device **10**. A first securing strap **206** extending from the seam **222** on the inside of the tube **102** is attached to the base sheet **104**. A second securing strap **306** (not illustrated in Figure 2) extends similarly from the seam opposite that of the first securing strap **206**. The securing straps **206**, **306** are attached to the base sheet **104** by any of various methods known by those skilled in the art, including welding, double-sided tape, or hot-glue.

[0012] The cover sheet **106** is a clear plastic material that forms a tent over the head of the patient **110** and serves to direct the escaping air over a greater portion of the body of the patient **110** by preventing the immediate escape of the heated air. A portion of one end **107** of the cover sheet **106** is attached **107** to one leg of the tube **102** using means known to those skilled in the art, for example, welding, double-sided tape, or hot-glue.

[0013] Also shown in Figure 2 are the exhaust ports **212a**, **212b**, **212c**, **212d** through which the heated air forced into the therapy device **10** escapes. The slits **1310** are substantially parallel to a line tangent to the nearest seam edge of the tube **102**. Alternatively, the slits **1310** are substantially perpendicular to the tangent of a circumference of the tube **102** defined by a radius perpendicular to the axis of the tube **102**, that is, the length of the slit **1310** follows the longitudinal axis of the tube **102**. Although Figure 2 illustrates

straight slits **1310**, in another embodiment, the exhaust ports **212** are V-shaped slits **1210**, as illustrated in Figure 12; that is, each exhaust port **212** is formed of two slits that are connected at one end and separated at the other end. In still another embodiment, the exhaust ports **212** are holes cut or punched into the tube **102**.

[0014] In yet another embodiment, the exhaust ports **212** are an integral part of the fabric of the tube **102**. That is, the tube **102** is fabricated with material that is air impermeable in all areas except where the exhaust ports **212** are located. For example, the tube **102** is fabricated out of air permeable fabric that is coated with a thin sheet of plastic or other air impermeable material, The coating completely coats the tube **102** material except in the areas in which heated air is to be exhausted. The uncoated areas form the exhaust ports **212** because air escapes from the tube **102** in those areas. Those skilled in the art will recognize that size, number, and location of the exhaust ports **212** are dependent upon the available air flow.

[0015] The exhaust ports **212** cover the surface of the tube **102** in the area in which heated air is desired to be exhausted. In the illustrated embodiment, the tube **102** does not discharge heated air in the area where the patient's ears would be located. The area between exhaust ports **212a** and **212b**, **212c** and **212d** is the area of the tube **102** that is adjacent to the ears of the patient **110**.

[0016] Figure 3 shows a therapy device **10** in a deflated state. The legs **302**, **304** of the therapy device **10** are splayed out because, when the tube **102** is inflated, the end of the legs **302**, **304** draw towards each other. In the illustrated embodiment, the legs **302**, **304** are substantially parallel to each other when the therapy device **10** is inflated.

[0017] Figure 4 shows another embodiment of a therapy device **10'** in a deflated state. In this embodiment, the legs **402**, **404** of the therapy device **10'** have a foot-shaped end portion opposite their connection to the crosspiece **308**. The shape of the legs **402**, **404** permits the heated air exhausted from the therapy device **10'** to be directed across the top of the full width of the shoulders of the patient **110**.

[0018] Figure 5 is an exploded view of the therapy device **10**, showing the base sheet **104**, two tube sheets **502**, **504**, the cover sheet **106**, and the inlet collar **108**. The base sheet **104** is fabricated of the same material as the tube sheets **502**, **504**, although those skilled in the art will recognize that other material can be used without departing from the spirit and scope of the present invention. The cover sheet **106** is fabricated of a thin-gauge clear plastic that is impermeable to air, for example, 10 gauge clear PVC sheeting. Although Figure 5 illustrates straight slits **1310**, in one embodiment, the exhaust ports **212** are V-shaped slits **1210**, as illustrated in Figure 12.

[0019] The tube **102** is made of two tube sheets **502**, **504**, one on top of the other. The tube sheets **502**, **504** are fabricated of a material that is not permeable to air, such as a fabric coated with a plastic. Those skilled in the art will recognize that any of various materials can be used without departing from the spirit and scope of the present invention. Common materials include woven and non-woven fabrics and cellulose. Material that is air permeable can be coated on at least one side with a thin film of plastic or other air impermeable material. The material is waterproof and impermeable to air.

[0020] In the illustrated embodiment, at least one of the tube sheets **502**, **504** has two securing straps **206**, **306**, each extending from a leg **206**, **306** towards the other. In another embodiment, the securing straps **206**, **306** are separate pieces of material placed between and secured to the tube sheets **502**, **504**. The two tube sheets **504**, **504** are sealed together at their common edges **222**. The sheets **502**, **504** can be sealed by gluing the opposing surfaces or by welding the plastic coated surfaces. The sealed edge **222** extends into the tube sheet **502**, **504** a distance sufficient to provide an air tight seal and provide mechanical strength when the tube **102** is inflated. For fabric with a plastic film, the sealed distance is approximately one-quarter inch.

[0021] In the illustrated embodiment, the tube **102** is secured to the base sheet **104** in four places. The tube **102** is attached by securing the seam **222** on both sides of the inlet collar **108** to the base sheet **104**. The tube **102** can be glued or welded to the base sheet **104**. The tube **102** is secured to the base sheet **104** by the two securing tabs **206**, **306** protruding from the tube **102**.

Each securing tab **206, 306** is folded under its respective tube leg **302, 304** and secured to the base sheet **104**.

[0022] The inlet collar **108** is secured to the cross-piece of the tube **102**. The inlet collar **108** is a section of stiff material, such as paper or cardboard, with a hole in the center sized to accept the nozzle of the heated air supply hose **112**. The inlet collar **108** is attached to the tube sheets **502, 504** by gluing it to the fabric. Slits **512, 514** are cut into the tube sheets **502, 504** and provide clearance for the nozzle of the heated air supply hose **112**. In the illustrated embodiment, the inlet collar **108** is not secured to the base sheet **104**.

[0023] Figure 6 illustrates a tube sheet **602** for another embodiment of the present invention, which is illustrated in Figure 7. The tube sheet **602**, instead of being laid flat during fabrication, has excess material **604, 606** which is folded over along the length of each leg **302, 304**. After the tube sheet **602** is attached to its mating tube sheet **504**, the tube legs **702, 704** have a greater height than without using the excess material **604, 606**. The excess material **604, 606** at the end of the tube legs **702, 704** can be seen in Figure 7 as a puckered area **712, 714** at the seam **222**. As can be seen in Figure 7, with the upper tube sheet **602** having excess material **604, 606**, the seam **222** on the outside of the tube legs **702, 704** is positioned closer to the base sheet **104** at the end of the tube leg **702, 704** opposite the connection to the crosspiece **708**. In another embodiment, both the top and bottom tube sheets **502, 504** are similar to the tube sheet **602** with excess material **604, 606**. A tube fabricated with excess material **604, 606** on both the top and bottom tube sheet **502, 504** has legs **702, 704** with a greater height, which results in the cover sheet **106** being supported more by the tube legs **702, 704** than the face of the patient **110**. Although Figure 7 illustrates straight slits **1310**, in one embodiment, the exhaust ports **212** are V-shaped slits **1210**, as illustrated in Figure 12.

[0024] Figure 8 is a flow diagram showing the steps of fabricating the therapy device **10**. The first step is to cut the material **802**. Once the material is cut, the tube sheets **502, 504** can be sealed at their common edges **222** by welding **804** or other means for making an air tight seal.

[0025] In one embodiment, the exhaust ports **212** are slits **1310** cut parallel to the edge **222** of the tube sheet **502, 504**. Once the two tube sheets

502, 504 are fastened together, the exhaust ports **212** are formed **806** by cutting into the material of the tube **102**. The exhaust ports **212** can be cut **806** by lancing slits **1210** and **1310** or punching holes in the tube sheets **502, 504**. In another embodiment, the exhaust ports **212** are uncoated areas of an air permeable material that is partially coated with a thin film of plastic or other air impermeable material. For this embodiment, when the tube sheet **502, 504** material is coated before cutting, the exhaust ports **212** can be formed **806** before the material is cut. Those skilled in the art will recognize that the number of exhaust ports **212** can vary based on their size and the available air supply flow without departing from the spirit and scope of the present invention.

[0026] After the tube sheets **502, 504** are mated **804**, the tube **102** is secured to the base sheet **104** by attaching the crosspiece **308** of the tube **102** to the base sheet **104** and by attaching the securing straps **206, 306** to the base sheet **104**. The inlet collar **108** is secured **810** to the tube **102** and the cover sheet **106** is attached **812** to the tube **102**. Lastly, the assembled therapy device is folded and packed **814**, and otherwise made ready for shipment, storage, and use.

[0027] In the illustrated embodiment, the patient **110** is positioned on the base sheet **104** with the head of the patient **110** between the legs **302, 304** of the therapy device **10**. Heated air is pumped into the therapy device **10** and is exhausted from the exhaust ports **212**, which are of a size and number to maintain a back pressure in the therapy device **10**, which serves to keep the tube **102** inflated. The cover sheet **106** is extended from one tube leg **302**, over the face of the patient **110**, and to the other tube leg **304**. The therapy device **10** disclosed is suitable for use with a patient **110** off-pump.

[0028] Figure 9 is a top view of a patient surrounded by an inflated therapy device **910** having extended arms **902** and **904**. The illustrated embodiment of the therapy device has a tube **102** including a crosspiece **926** attached to two legs **922** and **924**, attached to an extended foot **902** and **904**. The tube **102** is attached to a base sheet **104**, and attached to the tube is a head cover sheet **106** and an upper-body cover sheet **906**. The cover sheets **106** and **906** contain the warm air that is exhausted through an exhaust region **912a, 912b, 912c**, and **912d** of the tube **102**. The exhaust region **912**, in one

embodiment, includes a series of straight slits **1310** cut or lanced into the material of the tube **102**. In another embodiment, the exhaust region **912** includes a series of V-shaped slits **1210** cut or lanced into the material of the tube **102**.

5 **[0029]** Figure 10 is a top view of another embodiment of the therapy device **1010** having extended arms **902** and **904**. Overlapping head cover sheets **1006a** and **1006b** are positioned for covering the face of the patient **110**. A pair of upper-body cover sheets **1008a** and **1008b** are positioned for covering the arms of the patient **110**, thereby allowing access to the chest of the patient **110**. The
10 securing straps **1014A** and **1014b** attach the tube legs **922** and **924** to the base sheet **104**.

[0030] Figure 11a is a top view of an embodiment of a therapy device **1110** with a second crosspiece **1104**. The second crosspiece **1104** has an exhaust region **1112**, through which heated air can be directed towards the bottom
15 portion of the head of the patient **110**. The exhaust region **1112**, in one embodiment, includes a series of straight slits **1310** cut or lanced into the material of the tube **102**. In another embodiment, the exhaust region **1112** includes a series of V-shaped slits **1210** cut or lanced into the material of the tube **102**. Each end of the crosspiece **1104** is pneumatically connected to the
20 tube **102**. In another embodiment, one end of the crosspiece **1104** is pneumatically connected to the tube **102**, and the other end of the crosspiece **1104** is closed.

[0031] Figure 11b is a perspective view of the therapy device **1110** with the second crosspiece **1104**. The crosspiece **1104** is covered by the cover sheet **106**,
25 thereby ensuring that the air exhausted by the crosspiece **1104** is contained about the head of the patient **110**.

[0032] Figure 12 is a perspective view of a triangular, or V-shaped, slit **1210**, which, in one embodiment, forms at least one of the exhaust ports in the exhaust region **212**, **912**, **1112**, and **1412**. The material **1202** of one of the
30 sheets forming the therapy device **10**, **910**, **1010**, **1110**, **1410** is cut or lanced in a V-shape, resulting in a V-shaped flap **1204** and an opening **1206**. The escaping air **1212** from the therapy device forces the end of the flap **1204** to lift, allowing the air to exhaust through the opening **1206**.

[0033] Each V-shaped slit **1210** is formed of two straight slits, or cuts, forming an acute angle relative to each other and that are joined at one end. The point of the V-shaped slit **1210** forms a beak **1214** that is not attached to the sheet material **1202**. The beak **1214** is free to lift away from the sheet material **1202** when the internal air pressure is greater than the outside air pressure, as when the therapy device **10**, **910**, **1010**, **1110**, **1410** is inflated. In one embodiment, the beak **1214** of each V-shaped slit **1210** is directed and points towards the seam or joint of the two sheets **502**, **504**, **1602**, **1604** making up the therapy device **10**, **910**, **1010**, **1110**, **1410**. In another embodiment, the beak **1214** is directed toward along the normal circumference of the tube **102** at the point where the slit **1210** is located.

[0034] Figure 13 is a perspective view of a straight slit **1310**, which, in one embodiment, forms one of the exhaust ports in the exhaust region **212**, **912**, **1112**, and **1412**. The material **1302** of one of the sheets forming the therapy device **10**, **910**, **1010**, **1110**, **1410** is cut or lanced, forming a slit **1308** with two edges **1304** and **1306**. The two edges **1304** and **1306** separate when the therapy device is inflated, allowing the escaping air **1312** to exhaust through the opening **1308**. The slit **1310** is cut parallel to the longitudinal axis of the tube **102**, that is, the length of the slit **1310** is perpendicular to a line tangent to the circumference of the tube **102**. This orientation helps to separate the edges **1304** and **1306** when the tube **102** inflates.

[0035] Figure 14 is a top view of a patient with an inflated full body therapy device **1410**. The therapy device **1410** has a crosspiece **1406** separating the two tubular legs **1402** and **1404** such that the patient **110** fits between the legs **1402** and **1404**. In the illustrated embodiment, the device legs **1402** and **1404** extend the full length of the patient **110**. In another embodiment, the device legs **1402** and **1404** extend along a partial length of the patient **110**. The crosspiece **1406** includes an inlet port into which heated air is pumped into the therapy device **1410**. Figure 14 illustrates the heated air **1422** leaving the device legs **1402** and **1404** from an exhaust region **1412** and directed towards the patient **110**. To keep the air from escaping the area of the body, a flat sheet or blanket (not illustrated) is placed over the therapy device **1410** and the patient **110**. The exhaust region **1412**, in one embodiment, includes a series of straight slits **1310** cut or lanced into the material of the tube **102**. In another

embodiment, the exhaust region **1412** includes a series of V-shaped slits **1210** cut or lanced into the material of the tube **102**.

[0036] Figure 15 is a perspective view of the inflated full body therapy device **1410**. The illustrated embodiment shows the placement of the exhaust ports **1412a** relative to the inside of the U-shaped therapy device **1410**. The illustrated embodiment of the therapy device **1410** is formed of two flat sheets **1602** and **1604**, in a manner illustrated in Figure 16.

[0037] Figure 16 is an exploded view of the full body therapy device **1410**. A first sheet **1602** and a second sheet **1614** of similar size and configuration form the U-shaped tube **102**. In one embodiment, an inlet port is attached to the tube **102** in the same manner as illustrated in Figure 5. In another embodiment (not illustrated), an inlet port is formed in the top sheet **1602**. The two sheets **1602** and **1604** are attached at a peripheral edge to form an air impermeable joint such that, when inflated, the two **1602** and **1604** form a tube **102**.

[0038] From the forgoing description, it will be recognized by those skilled in the art that a therapy device for providing heated air to the full body of a patient has been provided. The therapy device is an inflatable U-shaped tube. A heated air supply tube is connected to the tube and the heated air both inflates the tube and is forced out of the exhaust ports of the tube, thereby providing an environment in which the patient's body is heated.

[0039] While the present invention has been illustrated by description of several embodiments and while the illustrative embodiments have been described in considerable detail, it is not the intention of the applicant to restrict or in any way limit the scope of the appended claims to such detail. Additional advantages and modifications will readily appear to those skilled in the art. The invention in its broader aspects is therefore not limited to the specific details, representative apparatus and methods, and illustrative examples shown and described. Accordingly, departures may be made from such details without departing from the spirit or scope of applicant's general inventive concept.

CLAIMS

Having thus described the aforementioned invention, we claim:

1. A therapy device for providing air to a patient's body, said device comprising:

5 a first sheet having a first leg, a second leg, a crosspiece, and a first sheet peripheral edge;

a second sheet having a shape and configuration congruent to that of said first sheet, said second sheet having a second sheet peripheral edge attached to said first sheet peripheral edge and forming an air tight seal between said first
10 sheet and said second sheet, said first sheet and said second sheet defining a tube;

an inlet port in said tube for forcing air into said tube;

an air impermeable region defined on a surface of said tube;

15 an exhaust region defined on said surface of said tube, said exhaust region directing air towards the patient's body; and

a plurality of pairs of straight slits formed in said exhaust region, each of said pair of straight slits connected at a first end and separated at an opposite second end, said pair of straight slits defining a V-shape.

2. The device of Claim 1 wherein each of said plurality of pairs of
20 straight slits includes a beak that points toward said first sheet peripheral edge.

3. The device of Claim 1 wherein said plurality of pairs of straight slits are located adjacent to said first sheet peripheral edge.

4. A therapy device for providing air to a patient's body, said device comprising:

25 a first sheet having a first leg, a second leg, a crosspiece, and a first sheet peripheral edge;

a second sheet having a shape and configuration congruent to that of said first sheet, said second sheet having a second sheet peripheral edge attached to said first sheet peripheral edge and forming an air tight seal between said first
30 sheet and said second sheet, said first sheet and said second sheet defining a tube;

an inlet port in said tube for forcing air into said tube;

an air impermeable region defined on a surface of said tube;
an exhaust region defined on said surface of said tube, said exhaust region directing air towards the patient's body; and

5 a plurality of pairs of straight slits formed in said exhaust region, each of said pair of straight slits connected at a first end and separated at an opposite second end, said pair of straight slits defining a V-shape having a beak that points toward said first sheet peripheral edge, said plurality of pairs of straight slits are located adjacent to said first sheet peripheral edge.

10 5. A therapy device for providing air to a patient's body, said device comprising:

a first sheet having a first leg, a second leg, a crosspiece, and a first sheet peripheral edge;

15 a second sheet having a shape and configuration congruent to that of said first sheet, said second sheet having a second sheet peripheral edge attached to said first sheet peripheral edge and forming an air tight seal between said first sheet and said second sheet, said first sheet and said second sheet defining a tube;

an inlet port in said tube for forcing air into said tube;

an air impermeable region defined on a surface of said tube;

20 an exhaust region defined on said surface of said tube, said exhaust region directing air towards the patient's body; and

a means for exhausting air from said tube through V-shaped slits.

6. A therapy device for providing air to a patient's body, said device comprising:

25 a tube formed of an air impermeable material; and

a plurality of V-shaped slits formed in said tube, each of said plurality of V-shaped slits having a beak.

7. A therapy device for providing air to a patient's body, said device comprising:

30 a means for releasably containing a first quantity of a medium;

a means for connecting a source of said first quantity of said medium to said means for containing; and

a means for exhausting a second quantity of said medium from said means for containing.

8. A therapy device for providing air to a patient's body, said device comprising:

5 an inflatable tube having a first leg for being positioned proximate a first side of the patient's body and for extending along at least a substantial portion of the length of the patient's body, a second leg for being positioned proximate a second, opposite side of the patient's body and for extending along at least a substantial portion of the length of the patient's body, and a crosspiece extending
10 between said first leg and said second leg, said tube further including an orifice for placing said tube in fluid communication with a gas supply, and defining a plurality of exhaust ports, each said exhaust port defining a pair of straight slits formed in said tube, said pair of straight slits being connected at a first end and separated at an opposite second end, whereby said pair of straight slits defining
15 a V-shape.

9. The therapy device of Claim 8 wherein said tube defines an gas impermeable region, and defines an exhaust region wherein said plurality exhaust ports are located, said exhaust region being located to facilitate the directing of gas towards the patient's body.

20 10. The therapy device of Claim 8 wherein said first and second legs extend substantially the length of the patient's body.

11. A therapy device for providing air to a patient's body, said device comprising:

25 a first sheet having a first leg, a second leg, a crosspiece, and a first sheet peripheral edge;

a second sheet having a shape and configuration congruent to that of said first sheet, said second sheet having a second sheet peripheral edge attached to said first sheet peripheral edge and forming an air tight seal between said first sheet and said second sheet, said first sheet and said second sheet defining a
30 tube;

an inlet port in said tube for forcing air into said tube;

an air impermeable region defined on a surface of said tube;

an exhaust region defined on said surface of said tube, said exhaust region directing air towards the patient's body; and

5 a plurality of pairs of straight slits formed in said exhaust region, each of said pair of straight slits connected at a first end and separated at an opposite second end, said pair of straight slits defining a V-shape.

12. The device of Claim 11 wherein each of said plurality of pairs of straight slits includes a beak that points toward said first sheet peripheral edge.

13. The device of Claim 11 wherein said plurality of pairs of straight slits are located adjacent to said first sheet peripheral edge.

10 14. A therapy device for providing air to a patient's body, said device comprising:

a first sheet having a first leg, a second leg, a crosspiece, and a first sheet peripheral edge;

15 a second sheet having a shape and configuration congruent to that of said first sheet, said second sheet having a second sheet peripheral edge attached to said first sheet peripheral edge and forming an air tight seal between said first sheet and said second sheet, said first sheet and said second sheet defining a tube;

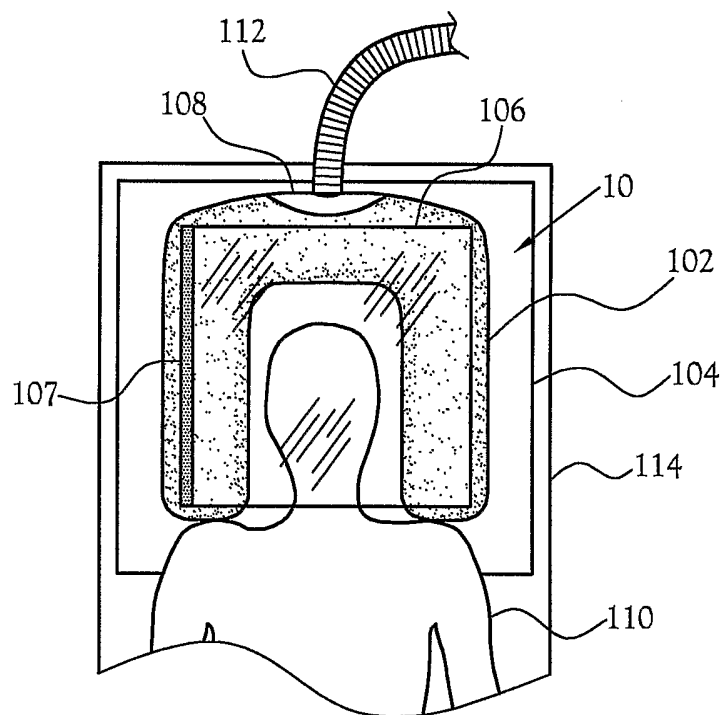
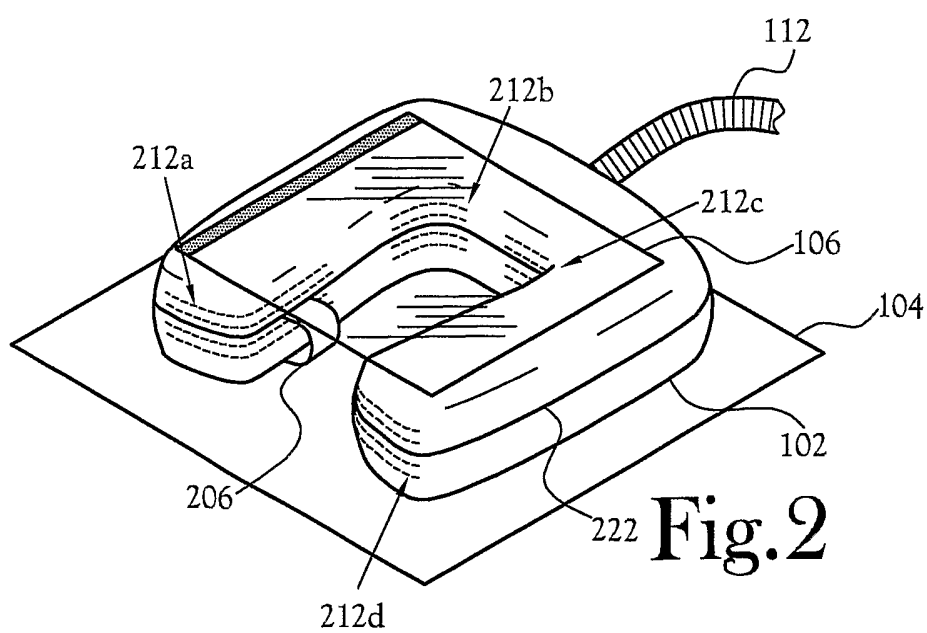
an inlet port in said tube for forcing air into said tube;

20 an air impermeable region defined on a surface of said tube;

an exhaust region defined on said surface of said tube, said exhaust region directing air towards the patient's body; and

a means for exhausting air from said tube through V-shaped slits.

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**Fig. 1****Fig. 2**

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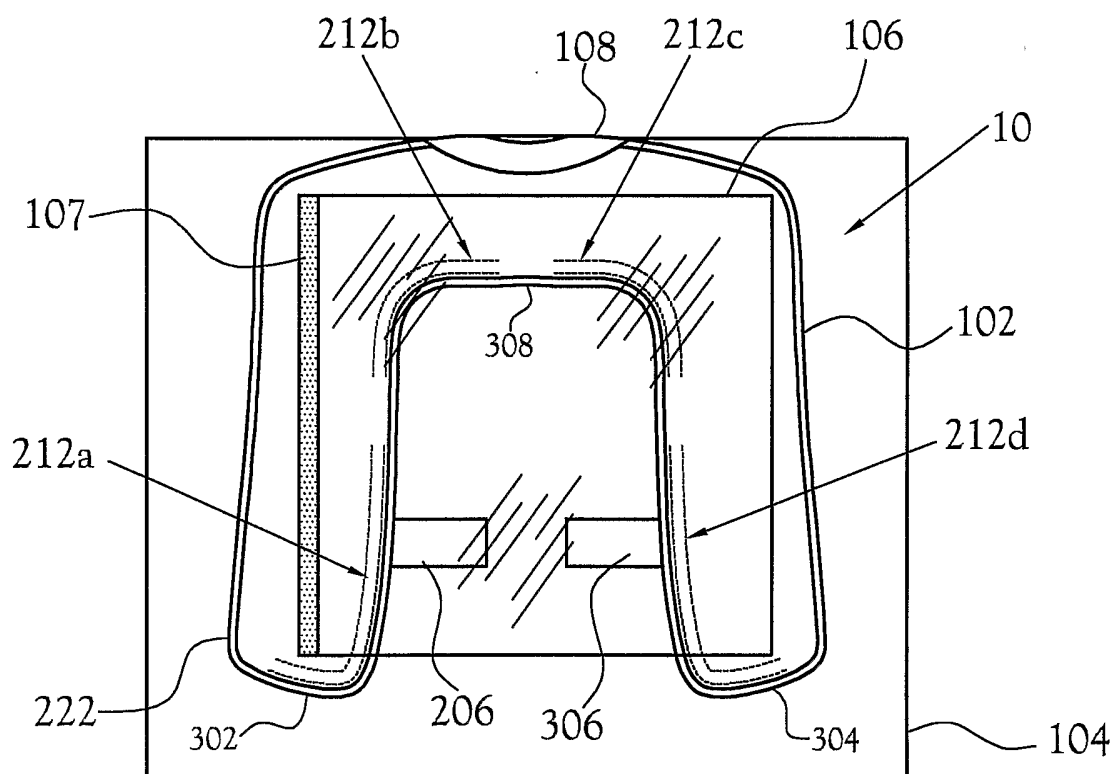


Fig. 3

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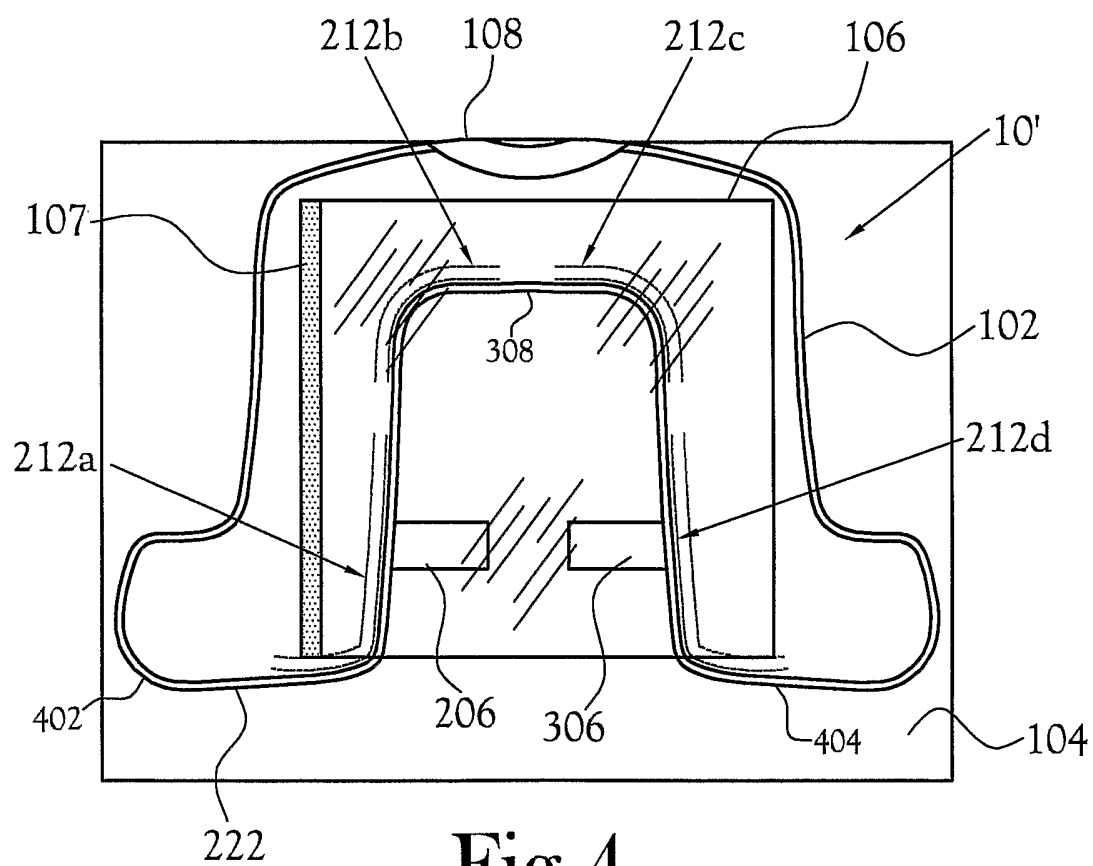


Fig. 4

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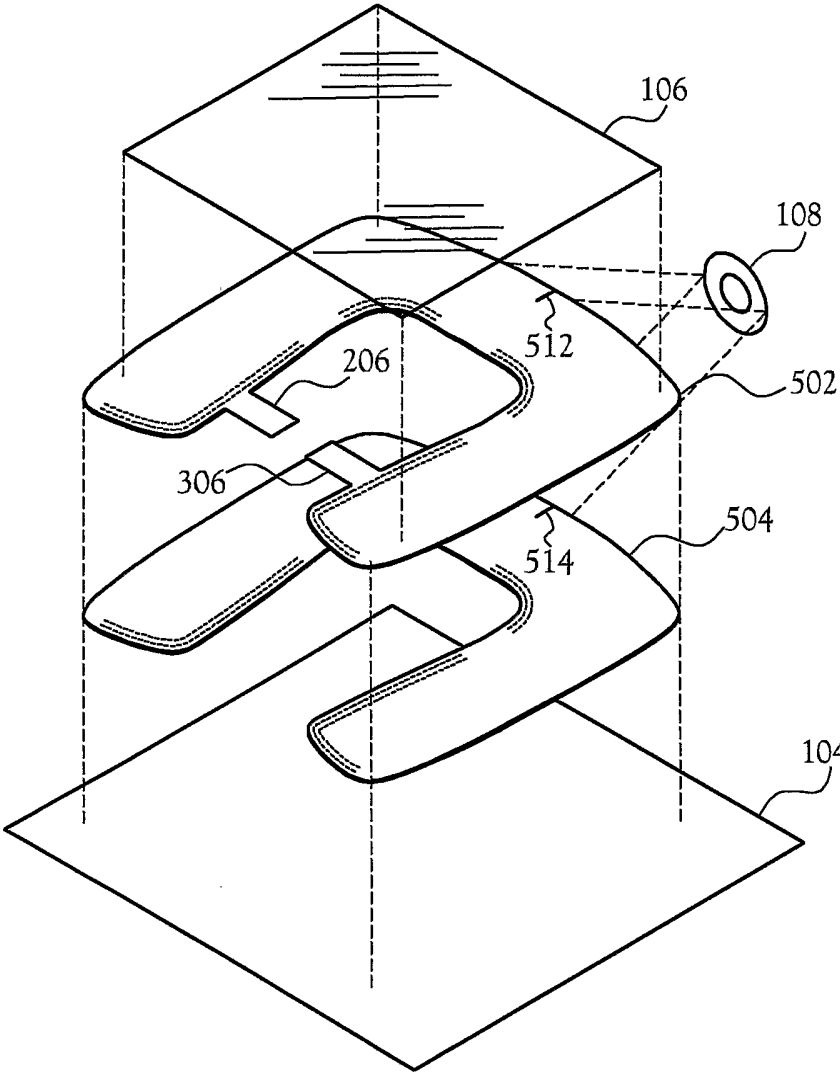


Fig.5

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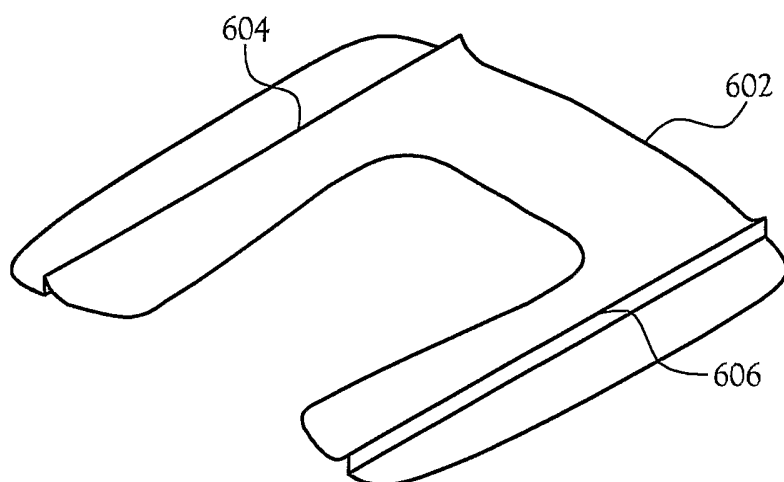


Fig. 6

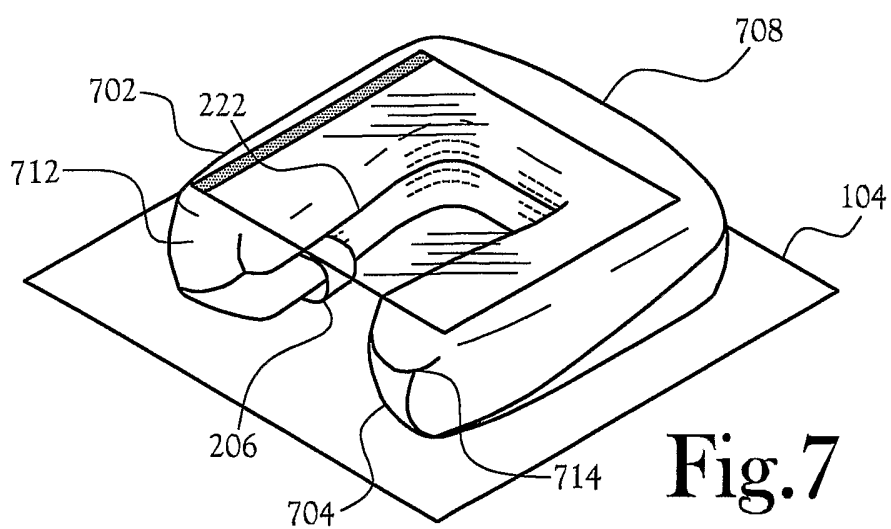


Fig. 7

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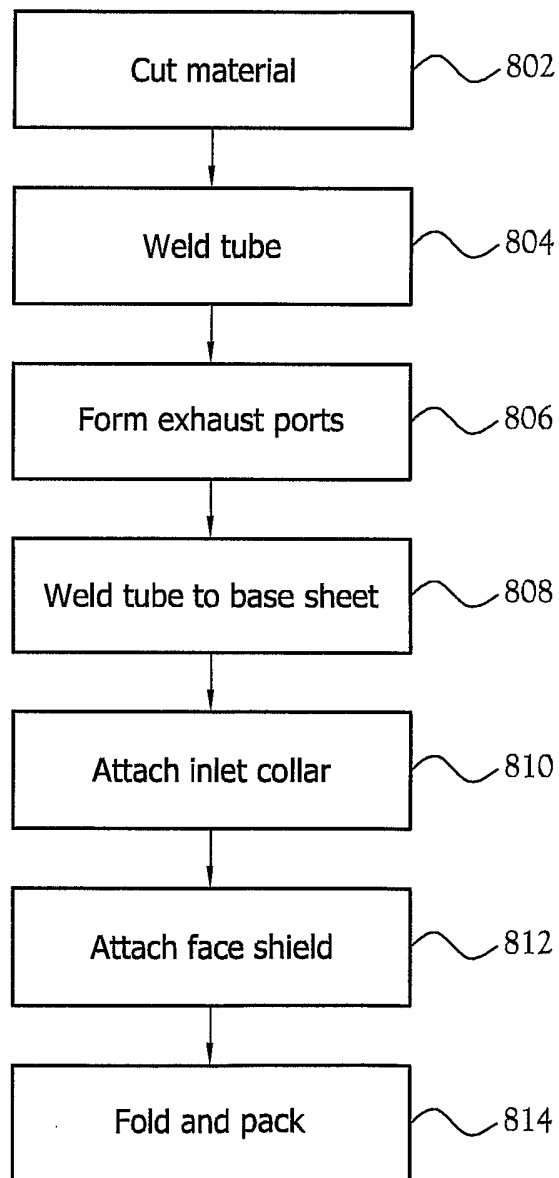


Fig.8

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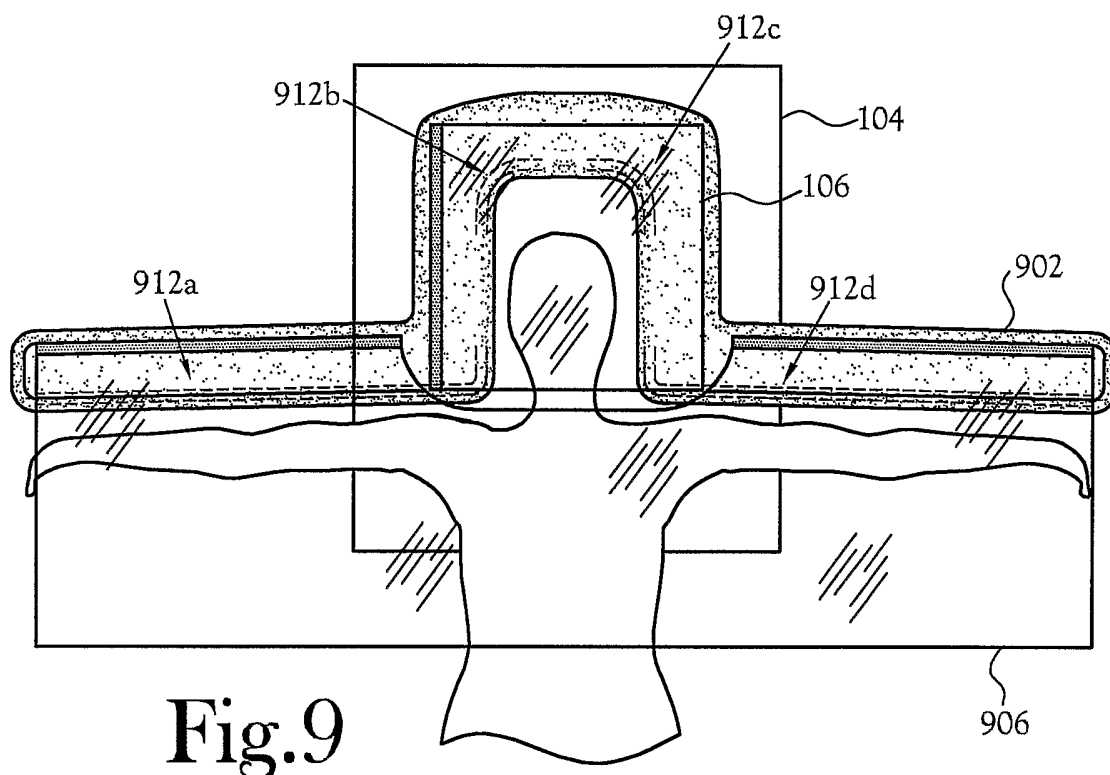


Fig. 9

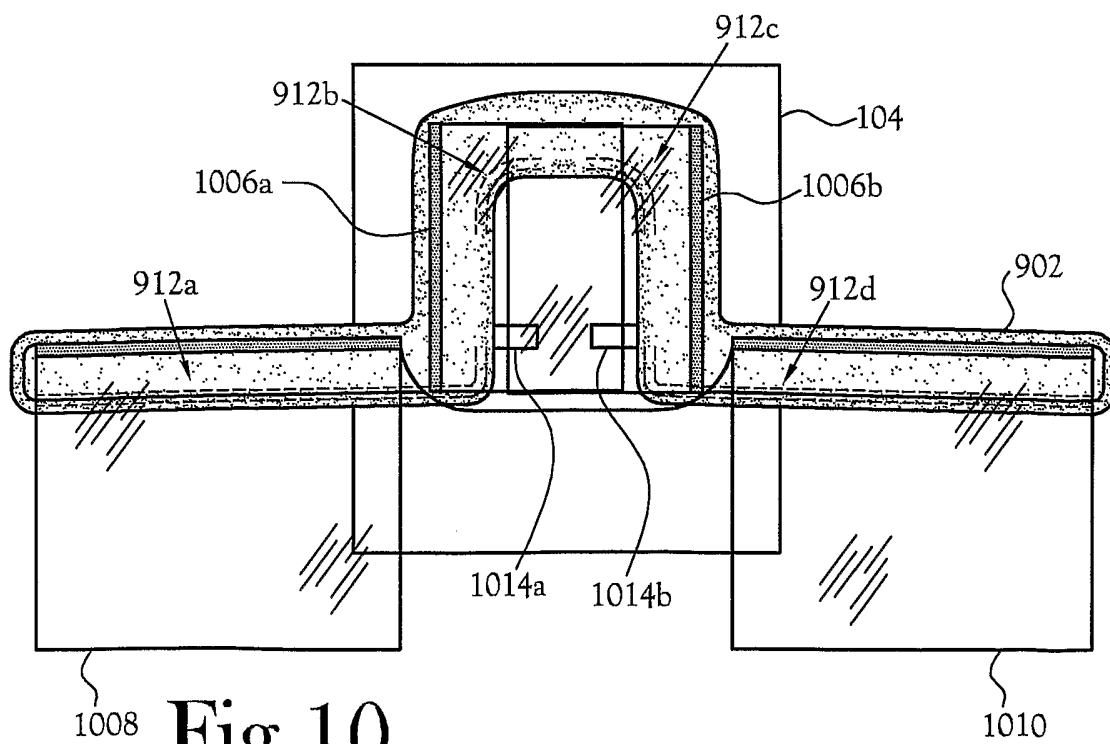


Fig. 10

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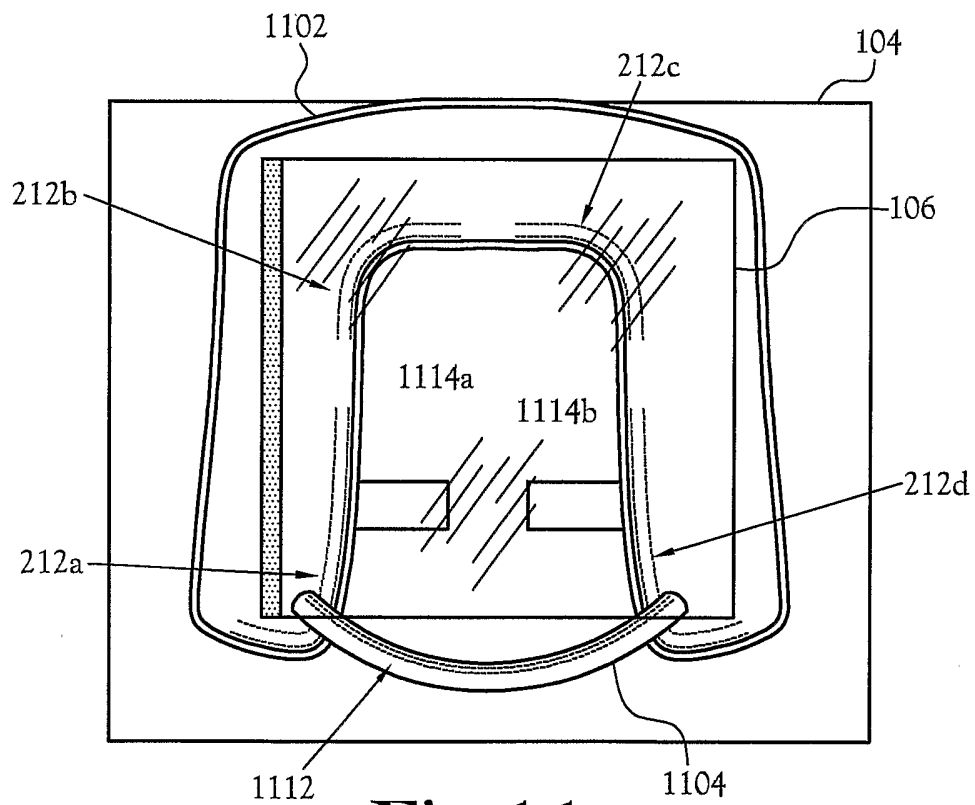


Fig. 11a

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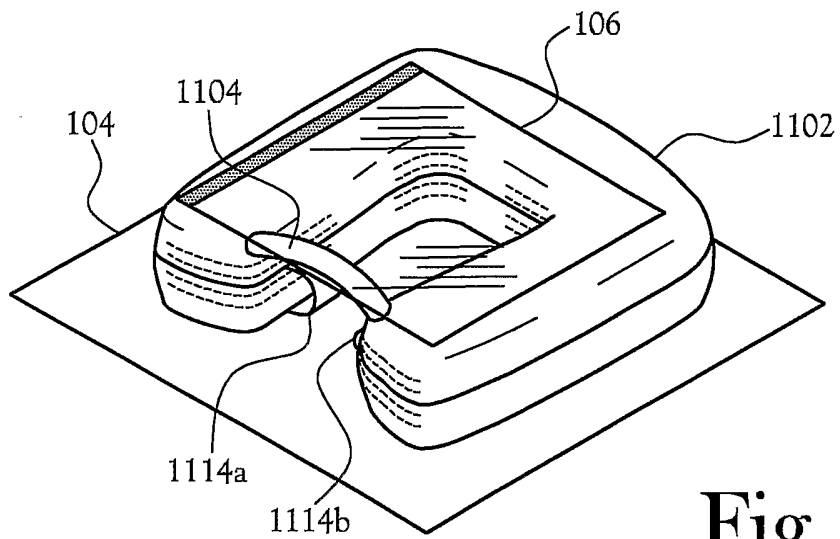


Fig.11b

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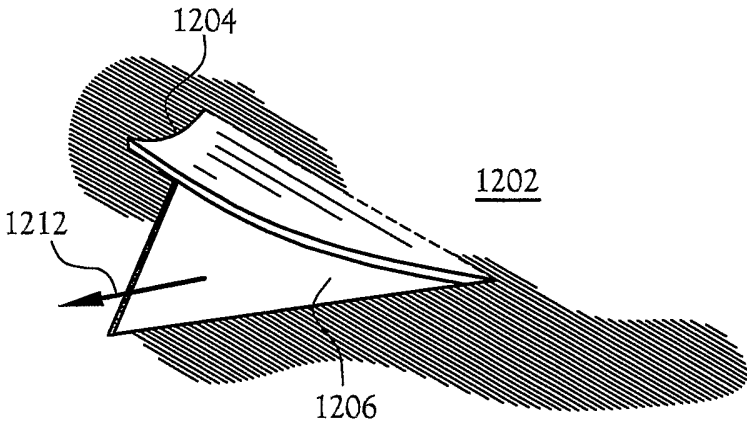


Fig.12

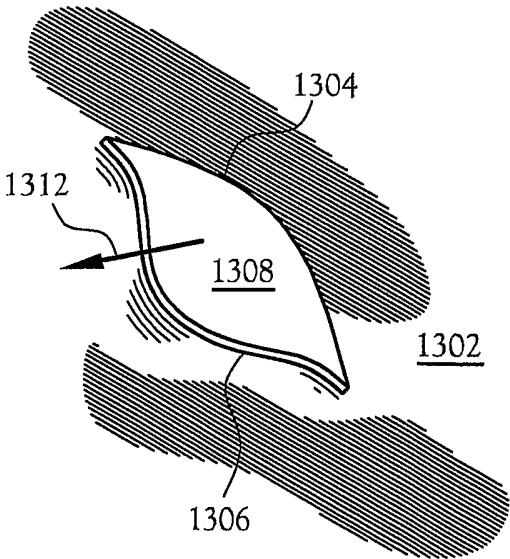


Fig.13

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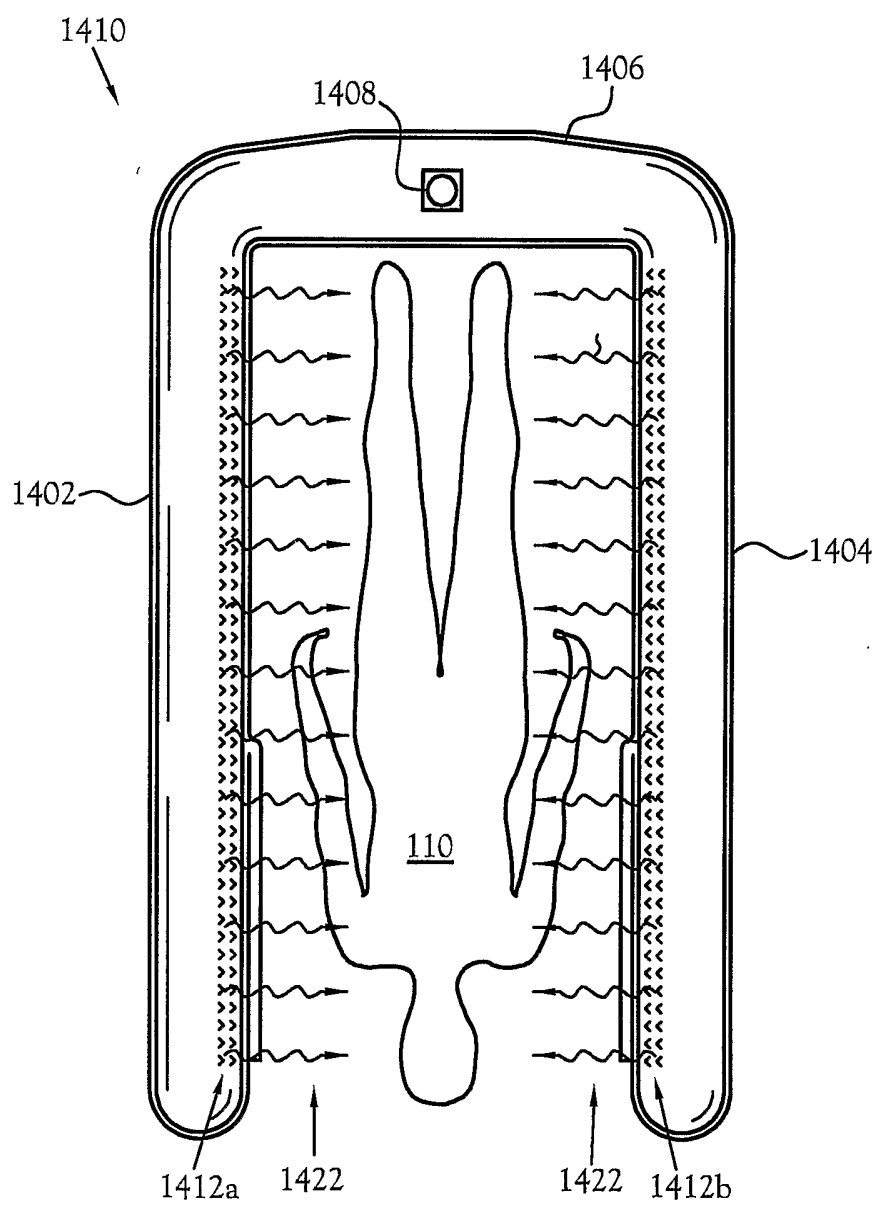


Fig. 14

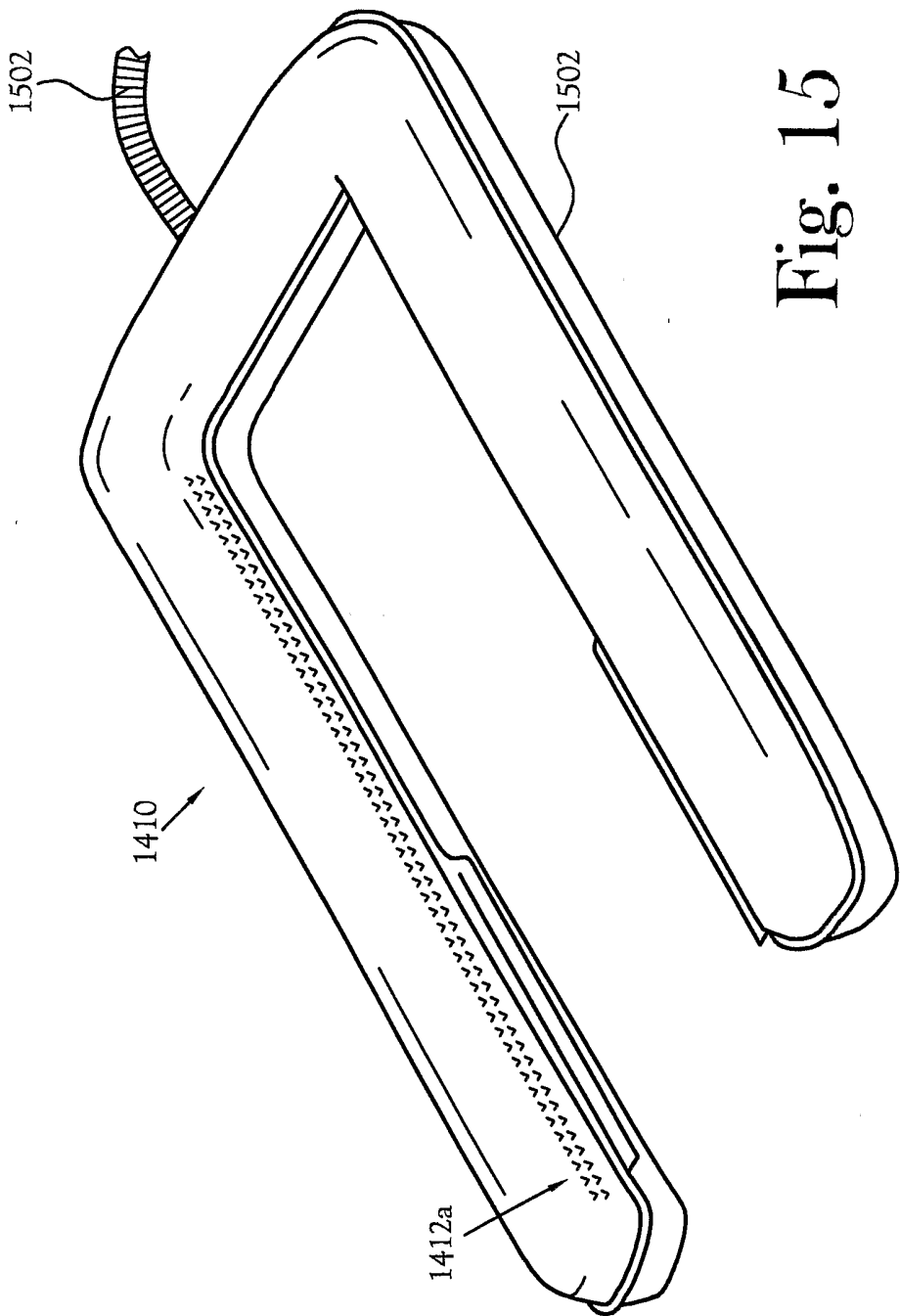


Fig. 15

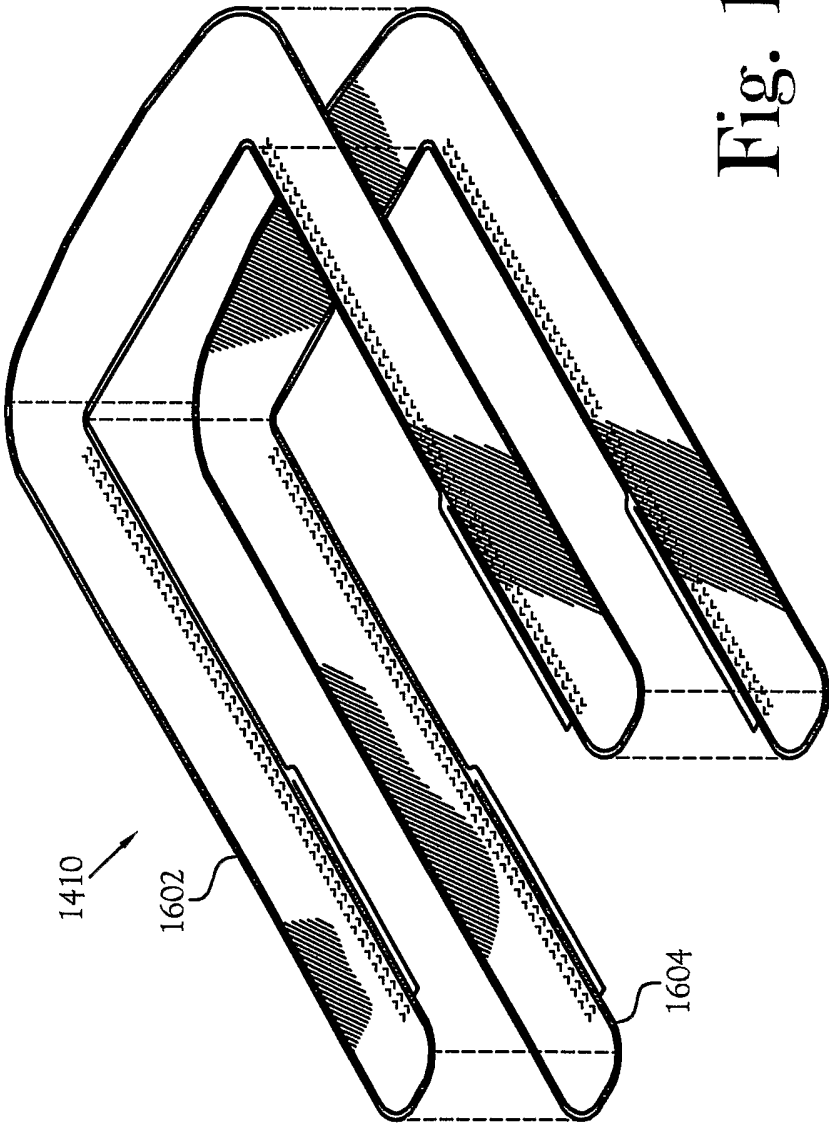


Fig. 16