

Description

BACKGROUND OF THE INVENTION

5 This invention relates to thermal blankets used in a medical setting to deliver a bath of a thermally-controlled medium to a patient.

The thermal blanket prior art is best expressed in our prior U.S. Patent No. 4,572,188 entitled "AIRFLOW COVER FOR CONTROLLING BODY TEMPERATURE" on which the first part of claim 1 is based. In our prior patent, a self-erecting, inflatable airflow cover is inflated by the introduction into the cover of a thermally-controlled inflating medium, such as warmed air. When inflated, the cover self-erects about a patient, thereby creating an ambient environment about the patient, the thermal characteristics of which are determined by the temperature of the inflating medium. Holes on the underside of our prior art airflow cover exhaust the thermally-controlled, inflating medium from inside the cover to the interior of the erected structure. Our airflow cover is intended for the treatment of hypothermia, as might occur post-operatively.

15 Evaluation of our airflow cover by skilled practitioners has resulted in general approbation: the opinion is that the airflow cover efficiently and effectively accomplishes its purpose of giving a thermally-controlled bath. We have realized, however, that, while our prior art airflow cover achieves its objective, certain improvements to it are necessary in order to realize additional clinical objectives and to enjoy further advantages in its use.

20 SUMMARY OF THE INVENTION

According to the present invention there is provided a thermal blanket for covering and bathing a person in a thermally-controlled inflating medium, including a plurality of communicating, inflatable chambers and having a head end, a foot end, two edges, and a plurality of apertures; the apertures opening into said chambers characterised in that the blanket comprises:

a flexible base sheet;

an overlaying flexible material sheet attached to a first surface of said base sheet by a plurality of discontinuous seams which form said overlaying material sheet into said chambers, the apertures opening through the base sheet into the said chambers; and

30 a continuous seam between said overlaying material sheet and the said base sheet at the head end which forms a non-inflatable viewing area in the blanket at the head end, the non-inflatable viewing area being substantially coplanar with, or parallel to, the base sheet.

In the thermal blanket of the present invention the contour of the non-inflatable portion at its head end is preferably generally concave to permit a care giver to more easily observe a patient's head, face, neck and chest. Similarly the blanket has discontinuous side seams providing exhaust port openings at the edges of the covering whereby limited venting of the thermally controlled inflating medium from the edges of the cover occurs which results in more efficient, more uniform heating within the cover.

In a preferred embodiment of thermal blanket an inflating inlet is provided adjacent the foot end and admits a thermally-controlled inflating medium into the covering. An aperture array on the undersurface of the covering exhausts the thermally-controlled inflating medium from the covering into the structure created when the covering self-erects upon inflation. The blanket may also include an absorbent bib attached to the covering at the head end adjacent the non-inflatable section, which helps keep the area in the vicinity of the patient's head end face as clean as possible. The preferred thermal blanket, when inflated and erected over a patient, delivers the thermally-controlled inflating medium into the interior of the structure covering the patient, thereby thermally bathing the patient. The non-inflatable viewing area permits full viewing of the head and face of the patient from almost any aspect around the thermal blanket. The exhaust port openings increase the rate of circulation of the inflating medium within the blanket, thereby increasing the temperature within the structure and making the temperature distribution more uniform. The absorbent bib soaks up and retains liquids which might otherwise spread over the care site in the area of a patient's head. Such liquids can include the patient's own perspiration, blood, vomit, saliva, or liquids which are administered to the patient. The absorbent bib also acts to some extent to seal the head end of the inflated structure.

The invention will now be described by way of example with reference to the below-summarized drawings, in which:

Figure 1 is a side elevation view of the thermal blanket in use, with associated thermal apparatus indicated schematically;

Figure 2 is an enlarged top plan view of the thermal blanket opened flat;

Figure 3 is an enlarged sectional view taken along 3-3 of Figure 2;

Figure 4 is a further enlarged sectional view taken along line 4-4 of Figure 3; and

Figure 5 is a partial underside view of the thermal blanket.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

When used herein, the term "thermal blanket" is intended to be interchangeable with, but not necessarily limited by, the term "airflow cover" used in our U.S. Patent No. 4,572,188, which is incorporated herein in its entirety by reference. In this description, the term "thermal blanket" is meant to invoke a self-erecting, inflatable structure for delivering a thermally-controlled inflating medium to the interior of the structure created when the thermal blanket is inflated. The purpose of the thermal blanket is to efficiently administer a uniformly thermally-controlled bath of the inflating medium to a patient within the erected structure.

Our invention is illustrated as we intend for it to be used in Figure 1. In Figure 1, a self-erecting, inflatable thermal blanket 10 has a head end 12, a foot end 14 and two lateral edges, one indicated by 15. An inflation inlet cuff 16 is connected to a heater/blower assembly 18 which provides a stream of heated air through a connecting hose 20. When the heater/blower 18 is operated, the stream of heated air flows through the inflating hose 20 into the thermal blanket 10 through the inflation cuff 16. When the blanket is inflated, it erects itself into a Quonset hut-like structure with a quilted upper surface 21. As described below, a pattern of apertures on the undersurface of the blanket (not shown in Figure 1) delivers the inflating heated air into the interior space enclosed by the erected thermal blanket.

The contour of the inflatable portion of the thermal blanket 10 is varied at the head end 12 of the blanket to provide a non-inflated blanket recess 22 in the quilted upper surface 21, which remains smooth and flat when the blanket is inflated and erected. Circulation of the heated air is accelerated through the thermal blanket by exhaust port openings in the upper surface, adjacent the lateral edges of the blanket. Two exhaust port openings are indicated by reference numeral 23. Further, a bib 24 made of an absorbent material is attached to the head end 12 of the thermal blanket in the vicinity of the non-inflated recess 22. In fact, as shown in Figure 1, the bib 24 includes a semi-circular tab 25 that extends into the recess 22.

As illustrated in Figure 1, the thermal blanket of the invention is inflated, erects itself into a bathing structure, and bathes a patient 26 with the thermally-controlled air used to inflate the structure. While the patient is being thermally bathed, the uninflated recess 22 permits observation of the patient's head, face, neck, and chest from almost any location with respect to the thermal blanket 10. Thus, if the patient is placed on a gurney or a bed, the head of which is against a wall, a care giver such as a nurse, intern, resident, or doctor, can keep the patient's face under observation from the foot end 14 of the thermal blanket 10. Respiration can be detected by the rise and fall of the bib and uninflated area, which rest directly on the patient's chest. Moreover, the bib 24 will provide an absorbent sink for stray, unconfined liquids in the area of the patient's head or at the head end 12 of the thermal blanket 10.

Figure 2 is a plan view of the thermal blanket 10 opened flat to show details of its structure. Figure 2 illustrates the upper surface of the thermal blanket, that is the side that is visible in Figure 1. As seen, the upper surface consists of a parallel array of elongated tubes of which 30 and 32 are the lateralmost tubes, 34 is the center tube, and the tubes 38 are arrayed between one of the lateralmost tubes and the center tube. Each tube is separated from an adjacent tube by a discontinuous seam, one of which is indicated by 40. The seam 40 separates the tube 32 and its nearest adjacent neighbor 38. The discontinuous seam 40 is interrupted by passageways 42 communicating between the tubes. An interrupted seam separates every tube from one adjacent neighboring tube. The seams permit the thermal blanket, when inflated, to assume a tubular structure on the upper surface, while the ports 42 permit full circulation of the inflating medium throughout the array of tubes. The foot-end seam 45 is continuous. The tubes are inflated through the center tube 34 which transitions to a port 36, through which the inflation cuff 16 is inserted. The edge seams 43 are discontinuous only at the exhaust port opening locations 23. A seal can be made between the inflation port 36 and the inflation cuff 16 by any conventional means, for example, an O-ring, or even tape. When the inflating medium is introduced into the center tube 34, it flows laterally from the center tube into all of the other tubes through the ports 42. Near the head end 12, a continuous seam 40 defines the forward end of all of the tubes, with the seam assuming a bell-curve shape. On the head end side of the seam 40, the thermal blanket 10 is uninflatable. The bell-shaped seam 40 thus defines the uninflatable area 22 at the head end of the thermal blanket 10, which is essentially coplanar with, or substantially parallel to, the underside of the blanket. As shown in Figure 1, by virtue of its structural integration with the rest of the thermal blanket 10, the non-inflated recess extends over the upper chest of the patient 26 when the blanket is inflated. However, since the recess 22 is uninflated, it provides a wide-angled viewing gap in the inflated contour of the upper surface 21. The gap is filled by continuation of the underside of the blanket. It is also noted that the pattern of inflatable tubes can be replaced by other suitable patterns of communicating, inflatable chambers. The tubes are preferred since they impart strength and shape to the erected bathing structure; other inflatable structures are contemplated, however.

The absorbent bib has an indent 43 cut into its outside edge, which permits the blanket to be drawn up to the chin of a patient and which provides absorbency laterally up the neck of the patient. The absorbent bib can consist of any absorbent material such as a single- or multi-ply tissue paper which is used to make paper towels.

Construction details of the thermal blanket 10 are illustrated in Figures 3 and 4. The thermal blanket 10 is assembled from a base sheet consisting of an underside layer 50 formed from flexible material capable of bonding to a layer 52 of heat-sealable plastic. For the layers 50 and 52, we have used a stratum of absorbent tissue paper prelaminated with a layer of heat-sealable plastic. Material of such construction is commercially available in production rolls and is used to make painters' drop cloths. The upper side of the thermal blanket consists of a sheet of plastic bonded to the plastic layer 52 by an interruptible heat-sealing process to form the interrupted seams, one of which is indicated by 54, and the inflatable tubes, one indicated by 55. As can be seen in Figure 3, the interruption of the seam 54 forms a passageway 56 between adjacent tubes 55 and 57.

The absorbent bib and tab are shown in Figure 3 as a single material layer 60/58. Alternatively, they may be formed from separate material sheets cut to the outlines illustrated in Figure 2. The absorbent material forming the bib and tab can be bonded to the upper plastic layer by heat process or by gluing.

The inventors also contemplate deletion of the bib and tab. In this instance, the thermal blanket would still have the viewing recess, which would be defined by the continuous seam at the head end, and which would be filled with the forward portion of the base sheet.

Circulation of heated air through the blanket is enhanced by the exhaust port openings 23, which open through the upper plastic sheet, which is heat sealed to the base of the blanket. The openings 23 vent the heated inflating air out of the outermost tubes 30 and 32, away from the underside of the blanket. Because air can circulate to, and through, the blanket edges, the inflating air in the outermost tubes is hotter than if the openings were absent. This results in hotter air being delivered through the underside apertures toward the edge of the blanket. We have measured the temperature distribution within the thermal blanket for inflating air which is heated to a medium temperature range and for inflating air which is heated to a high temperature range. The results are provided in Table I for a blanket consisting of 13 tubes. Measurements of the temperature of air exhausted through underside apertures were made on the underside of each tube on one side of the blanket. The tubes are numbered 1-6, with 1 being the tube adjacent to the center tube, and tube 6 being the outermost tube adjacent on lateral edge of the blanket. Test apertures were made in the bottom of tube 6 only for the purposes of this test. As is evident, the distribution of temperature within the erected thermal blanket is more uniform when the exhaust port openings are provided. Further, provision of the exhaust ports also increases the average temperature within the erected structure of the blanket. Clearly, the provision of exhaust port openings at the lateral edges of the blanket delivers results which one would not expect when considering the operation of our thermal blanket with no exhaust port openings.

In our preferred embodiment, the exhaust port openings are slits in the edge seams of our blanket. These slits vary in length from 1-3/4 to 2 inches. Each edge seam is discontinuous approximately at each corner of the blanket so that inflating air is vented away from the underside of the erected blanket. This keeps the relatively "colder" air at the blanket edges from mixing with the relatively "hotter" air exhausted into the structure through the underside apertures. The result is a "flatter" temperature profile of air within the blanket than without the vents, which raises the average temperature within the erected structure and makes the temperature distribution in the structure more uniform. Resultantly, the clinical effect of the blanket is enhanced. Heating is better controlled, and more uniform, with greater comfort to the patient.

TABLE I

	MEDIUM TEMPERATURE RANGE		HIGH TEMPERATURE RANGE	
	WITHOUT EXHAUST PORTS	WITH 2" EXHAUST PORTS	WITHOUT EXHAUST PORTS	WITHOUT 2" EXHAUST PORTS
TUBE NO.				
center (inlet) tube	113.3° F.	114.1° F.	121.3° F.	121.3° F.
Tube #1	109.9°	112.3°	117.3°	117.7°
Tube #2	105.3°	109.8°	113.4°	115.0°
Tube #3	103.2°	107.1°	111.0°	113.3°
Tube #4	99.9°	104.3°	101.4°	108.6°
Tube #5	97.2°	100.0°	95.7°	104.4°
Tube #6 (outermost)	85.2°	95.8°	89.6°	99.4°
Average temp. under cover	103.8°	106.7°	108.4°	112.5°

The thermal blanket of the invention is enabled to bathe a patient in the thermally-controlled inflating medium introduced into the upper side tubes by means of a plurality of apertures 62 shown in Figures 4 and 5. The apertures extend through the underside of the blanket, which includes the layers 50 and 52. The apertures 62 are made in the footprints of the tubes of the blanket upper side according to a pattern which has been determined to deliver a very uniform thermal bath. In this regard, no apertures are provided through the underside into the lateralmost tubes 30 and 32, or into the center tube 34. In addition, the apertures 62 are provided through the underside to the apertured tubes in a density which varies inversely with the proximity of the tube to the center tube 34. Thus, the hole density increases from the tube 38a through the tube 38d. Even with the exhaust port openings, the temperature of the inflating medium exhibits a drop from the center to the lateralmost tubes. The varying density of the apertures 62 tends to reduce this gradient further by forcing hotter air to the edges of the blanket. Thus, the thermal bath delivered to the patient is of a generally uniform temperature. The aperture density variation also equalizes the flow of inflating medium out of the apertures. As will be evident, the inflating pressure will be greatest at the center tube 34 and will tend to diminish toward the lateral edges of the thermal blanket. Therefore, fewer apertures are required for the tubes near the center tube 34 to deliver the same amount of air as the relatively greater number of apertures in the tubes at a greater distance from the center tube 34.

The apertures comprise openings which can be of any appropriate shape. For example, we have produced blankets with elongated apertures, approximately 1/7 inch in length.

Many modifications and variations of our invention will be evident to those skilled in the art. It is understood that such variations may deviate from specific teachings of this description without departing from the essence of the invention, which is expressed in the following claims.

Claims

1. A thermal blanket (10) for covering and bathing a person in a thermally-controlled inflating medium, including a plurality of communicating, inflatable chambers (30, 32, 34, 38) and having a head end (12), a foot end (14), two edges (15), and a plurality of apertures (62); the apertures (62) opening into said chambers characterised in that the blanket (10) comprises:
 - a flexible base sheet (50);
 - an overlaying flexible material sheet (21) attached to a first surface of said base sheet by a plurality of discontinuous seams (40) which form said overlaying material sheet into said chambers, the apertures (62) opening through the said base sheet into the chambers; and
 - a continuous seam (40) between said overlaying material sheet and the base sheet (50) at the head end (12) which forms a non-inflatable viewing area (22) in the blanket (10) at the head end, the non-inflatable viewing area (22) being substantially coplanar with, or parallel to, the base sheet (50).
2. The thermal blanket of claim 1, wherein said base sheet includes an undersheet of flexible fibrous material (50) and a sheet (52) of plastics material coextensive with and attached to said undersheet.
3. The thermal blanket of claim 1, wherein said base sheet includes a multi-layered structure in which the bottommost layer is a paper sheet (50) bonded to an upper sheet (52) of plastics material.
4. The thermal blanket of claim 2 or 3, wherein said discontinuous seams (40) are substantially elongate, heat-formed seals between said overlaying material sheet and sheet of plastics material.
5. The thermal blanket of claim 2, 3 or 4, wherein one of said discontinuous seams (40) includes a sequence of collinear, heat-formed seals extending from said foot end to said head end.
6. The thermal blanket of any one of the preceding claims, wherein said plurality of discontinuous seams form said overlaying material sheet into a plurality of mutually parallel, communicating tubular chambers (30, 32, 34, 38).
7. The thermal blanket of any one of the preceding claims, including an exhaust port opening (23) through said material sheet adjacent one of said edges for venting an inflating medium from said chambers and away from said base sheet.
8. The thermal blanket of any one of the preceding claims, including a patterned array of apertures (62) opening through said base sheet into said chambers (30, 32, 34, 38), said patterned array comprising a density pattern in which the density of said apertures increases toward at least one of said edges (15).
9. The thermal blanket of claim 8 when dependent on claim 6, wherein one of said tubular chambers (34) is centrally positioned in said parallel tubular chambers and said density increases from said centrally positioned chamber (34) toward at least one of said edges (15).
10. The thermal blanket of claim 9, wherein no apertures open through said base sheet into said centrally positioned tubular chamber (34).
11. The thermal blanket of claim 10, wherein no apertures open through said base sheet into a tubular chamber (30, 32) adjacent one of said edges.
12. The thermal blanket of any one of the preceding claims, comprising an inflating inlet (16) adjacent said foot end (14) for admitting a thermally-controlled inflating medium.
13. The thermal blanket of any one of the preceding claims, including an absorbent bib (24) attached to the head end of said base sheet.

Patentansprüche

1. Wärmedecke (10) zum Bedecken und Baden einer Person in einem thermisch regulierten Aufblasmedium, die eine Vielzahl von miteinander in Verbindung stehenden, aufblasbaren Kammern (30, 32, 34, 38) aufweist und ein Kopfende (12), ein Fußende (14), zwei Ränder (15) und eine Vielzahl von Öffnungen (62) hat, wobei die Öffnungen (62) in die Kammern münden, dadurch gekennzeichnet, daß die Decke (10)
 - ein flexibles Basislaken (50),
 - ein darüberliegendes, flexibles Materiallaken (21), das durch eine Vielzahl von unterbrochenen Säumen



The apertures comprise openings which can be of any appropriate shape. For example, we have produced blankets with elongated apertures, approximately 1/7 inch in length.

Many modifications and variations of our invention will be evident to those skilled in the art. It is understood that such variations may deviate from specific teachings of this description without departing from the essence of the invention, which is expressed in the following claims.

Claims

1. A thermal blanket (10) for covering and bathing a person in a thermally-controlled inflating medium, including a plurality of communicating, inflatable chambers (30, 32, 34, 38) and having a head end (12), a foot end (14), two edges (15), and a plurality of apertures (62); the apertures (62) opening into said chambers characterised in that the blanket (10) comprises:

a flexible base sheet (50);

an overlaying flexible material sheet (21) attached to a first surface of said base sheet by a plurality of discontinuous seams (40) which form said overlaying material sheet into said chambers, the apertures (62) opening through the said base sheet into the chambers; and

a continuous seam (40) between said overlaying material sheet and the base sheet (50) at the head end (12) which forms a non-inflatable viewing area (22) in the blanket (10) at the head end, the non-inflatable viewing area (22) being substantially coplanar with, or parallel to, the base sheet (50).

2. The thermal blanket of claim 1, wherein said base sheet includes an undersheet of flexible fibrous material (50) and a sheet (52) of plastics material coextensive with and attached to said undersheet.

3. The thermal blanket of claim 1, wherein said base sheet includes a multi-layered structure in which the bottommost layer is a paper sheet (50) bonded to an upper sheet (52) of plastics material.

4. The thermal blanket of claim 2 or 3, wherein said discontinuous seams (40) are substantially elongate, heat-formed seals between said overlaying material sheet and sheet of plastics material.

5. The thermal blanket of claim 2, 3 or 4, wherein one of said discontinuous seams (40) includes a sequence of collinear, heat-formed seals extending from said foot end to said head end.

6. The thermal blanket of any one of the preceding claims, wherein said plurality of discontinuous seams form said overlaying material sheet into a plurality of mutually parallel, communicating tubular chambers (30, 32, 34, 38).

7. The thermal blanket of any one of the preceding claims, including an exhaust port opening (23) through said material sheet adjacent one of said edges for venting an inflating medium from said chambers and away from said base sheet.

8. The thermal blanket of any one of the preceding claims, including a patterned array of apertures (62) opening through said base sheet into said chambers (30, 32, 34, 38), said patterned array comprising a density pattern in which the density of said apertures increases toward at least one of said edges (15).

9. The thermal blanket of claim 8 when dependent on claim 6, wherein one of said tubular chambers (34) is centrally positioned in said parallel tubular chambers and said density increases from said centrally positioned chamber (34) toward at least one of said edges (15).

10. The thermal blanket of claim 9, wherein no apertures open through said base sheet into said centrally positioned tubular chamber (34).

11. The thermal blanket of claim 10, wherein no apertures open through said base sheet into a tubular chamber (30, 32) adjacent one of said edges.

12. The thermal blanket of any one of the preceding claims, comprising an inflating inlet (16) adjacent said foot end (14) for admitting a thermally-controlled inflating medium.

13. The thermal blanket of any one of the preceding claims, including an absorbent bib (24) attached to the head end of said base sheet.

Patentansprüche

1. Wärmedecke (10) zum Bedecken und Baden einer Person in einem thermisch regulierten Aufblasmedium, die eine Vielzahl von miteinander in Verbindung stehenden, aufblasbaren Kammern (30, 32, 34, 38) aufweist und ein Kopfende (12), ein Fußende (14), zwei Ränder (15) und eine Vielzahl von Öffnungen (62) hat, wobei die Öffnungen (62) in die Kammern münden, dadurch gekennzeichnet, daß die Decke (10)

ein flexibles Basislaken (50),

ein darüberliegendes, flexibles Materiallaken (21), das durch eine Vielzahl von unterbrochenen Säumen



(40), die das darüberliegende Materiallaken zu den Kammern formt, an einer ersten Oberfläche des Basislakens befestigt ist, wobei die Öffnungen (62) durch das Basislaken hindurch in die Kammern münden, und einen durchgehenden Saum (40) an dem Kopfende (12) zwischen dem darüberliegenden Materiallaken und dem Basislaken (50) aufweist, das in der Decke (10) an dem Kopfende einen nicht aufblasbaren Sichtbereich (22) bildet, wobei der nicht aufblasbare Sichtbereich (22) im wesentlichen koplanar oder parallel zu dem Basislaken (50) ist.

2. Wärmedecke nach Anspruch 1, bei welcher das Basislaken ein Unterlaken aus flexiblem Fasermaterial (50) und ein Laken (52) aus Kunststoffmaterial aufweist, das sich genauso wie das Unterlaken erstreckt und an ihm befestigt ist.

3. Wärmedecke nach Anspruch 1, bei welcher das Basislaken einen mehrlagigen Aufbau aufweist, bei welchem die unterste Lage ein Papierlaken (50) ist, das mit einem oberen Laken (52) aus Kunststoffmaterial haftend verbunden ist.

4. Wärmedecke nach Anspruch 2 oder 3, bei welcher die unterbrochenen Säume (40) im wesentlichen langgestreckte Heißsiegelungen zwischen dem darüberliegenden Materiallaken und dem Laken aus Kunststoffmaterial sind.

5. Wärmedecke nach Anspruch 2, 3 oder 4, bei welcher einer der unterbrochenen Säume (40) eine Folge von kollinearen Heißsiegelungen aufweist, die sich von dem Fußende zu dem Kopfende erstrecken.

6. Wärmedecke nach einem der vorhergehenden Ansprüche, bei welcher die Vielzahl von unterbrochenen Säumen das darüberliegende Materiallaken zu einer Vielzahl von zueinander parallelen, miteinander in Verbindung stehenden rohrförmigen Kammern (30, 32, 34, 38) formen.

7. Wärmedecke nach einem der vorhergehenden Ansprüche, die angrenzend an einen der Ränder eine Abfuhrschlitzöffnung (23) durch das Materiallaken zur Entlüftung eines Aufblasmediums aus den Kammern und weg von dem Basislaken aufweist.

8. Wärmedecke nach einem der vorhergehenden Ansprüche, die eine gemusterte Anordnung von Öffnungen (62) aufweist, die durch das Basislaken in die Kammern (30, 32, 34, 38) münden, wobei die gemusterte Anordnung ein Dichtemuster aufweist, bei welchem die Dichte der Öffnungen zu wenigstens einem der Ränder (15) hin zunimmt.

9. Wärmedecke nach Anspruch 8, wenn er von Anspruch 6 abhängig ist, bei welcher eine der rohrförmigen Kammern (34) zentral in den parallelen, rohrförmigen Kammern positioniert ist und die Dichte von der zentral positionierten Kammer (34) zu wenigstens einem der Ränder (15) hin zunimmt.

10. Wärmedecke nach Anspruch 9, in welcher keine Öffnungen durch das Basislaken in die zentral positionierte, rohrförmige Kammer (34) münden.

11. Wärmedecke nach Anspruch 10, bei welcher keine Öffnungen durch das Basislaken in eine an einen der Ränder angrenzende, rohrförmige Kammer (30, 32) münden.

12. Wärmedecke nach einem der vorhergehenden Ansprüche, die angrenzend an das Fußende (14) einen Aufblaseeinlaß (16) zum Einlassen eines thermisch regulierten Aufblasmediums aufweist.

13. Wärmedecke nach einem der vorhergehenden Ansprüche, die ein an dem Kopfende des Basislakens befestigtes, absorbierendes Lätzchen (24) aufweist.

Revendications

1. Une couverture chauffante (10), pour couvrir et entourer une personne dans un milieu gonflable soumis à une commande de température, comprenant une pluralité de chambres gonflables (30,32,34,38), communicantes, et présentant une extrémité à la tête (12), une extrémité aux pieds (15) et une pluralité d'ouvertures (62); les ouvertures (62) débouchant dans lesdites chambres, caractérisée en ce que la couverture (10) comprend:

une feuille de base (50) flexible;

une feuille en matériau flexible (21) en couche supérieure, fixée à une première surface de ladite feuille de base, par une pluralité de coutures discontinues (40) qui forment ladite feuille de matériau de couche supérieure en lesdites chambres, les ouvertures (62) débouchant à l'intérieur des chambres, en passant dans ladite feuille de base; et

une couture continue (40) située entre ladite feuille de matériau de couche supérieure et la feuille de base (50), à l'extrémité de tête (12) qui forme une surface d'observation/surveillance (22) non-gonflable, dans la couverture (10), à l'extrémité de tête, la surface de surveillance non gonflable (22) étant pratiquement plane, ou parallèle, à la feuille de base (50).

2. La couverture chauffante selon la revendication 1, dans laquelle ladite feuille de base comprend une feuille sous-jacente en matériau fibreux flexible (50) et une feuille (52) en matériau synthétique, extensible



simultanément avec la feuille sous-jacente et fixée à elle.

3. La couverture chauffante selon la revendication 1, dans laquelle ladite feuille de base présente une structure multi-couches, dans laquelle la couche la plus basse du fond est une feuille en papier (50) liée à une feuille supérieure (52) en matériau synthétique.

4. La couverture chauffante selon la revendication 2 ou 3, dans laquelle lesdites coutures discontinues (40), sont des joints d'étanchéité sensiblement allongés, formés par effet thermique, entre ladite feuille en matériau de couche supérieure et la feuille en matière synthétique.

5. La couverture chauffante selon la revendication 2, 3 ou 4, dans laquelle l'une desdites coutures (40) comprend une succession de joints d'étanchéités, colinéaires, formés par effet thermique, qui s'étendent de ladite extrémité de pied à ladite extrémité de tête.

6. La couverture chauffante selon l'une quelconque des revendications précédentes, dans laquelle ladite pluralité de coutures discontinues forme avec ladite feuille en matériau de couche supérieure une pluralité de chambres tubulaires (30,32,34,38), parallèles et en communication.

7. La couverture chauffante selon l'une quelconque des revendications précédentes, comprenant une ouverture d'orifice d'échappement (23), ménagée dans ladite feuille de matériau adjacente à l'un desdits bords pour assurer la mise à l'évent et d'un milieu qui sert au gonflage et qui provient desdites chambres et s'échappe de ladite feuille de base.

8. la couverture chauffante selon l'une quelconque des revendications précédentes, comprenant une disposition géométrique à motif composée d'ouvertures (62) débouchant, par ladite feuille de base, dans lesdites chambres (30, 32, 34, 38), ladite disposition à motif présentant un motif ou portion de densité, dans lequel la densité desdites ouvertures augmente en direction d'au moins l'un desdits bords (15).

9. La couverture chauffante selon la revendication 8, dans laquelle l'une desdites chambres tubulaires (34) est positionnée centralement dans lesdites chambres tubulaires parallèles et ladite densité augmentant en allant de ladite chambre positionnée centralement (34), vers au moins l'un desdits bords (15).

10. La couverture chauffante selon la revendication 9, dans laquelle aucune ouverture ne débouche dans ladite feuille de base, dans ladite chambre tubulaire (34) positionnée centralement.

11. La couverture chauffante selon la revendication 10, dans laquelle aucune ouverture ne débouche dans ladite feuille de base, vers une chambre tubulaire (30,32) adjacente à l'un desdits bords.

12. La couverture chauffante selon l'une quelconque des revendications précédentes, comprenant une entrée de gonflage (16) adjacente à ladite extrémité au côté des pieds (14) du patient, pour admettre un milieu de gonflage contrôlé en température.

13. La couverture chauffante selon l'une quelconque des revendications précédentes, comprenant un bavoir absorbant (24) fixé à l'extrémité du côté de tête du patient, sur ladite feuille de base.