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(54) **AIR-ACTIVATED HEATED TRAVEL PILLOWS AND TRAVEL BLANKETS**

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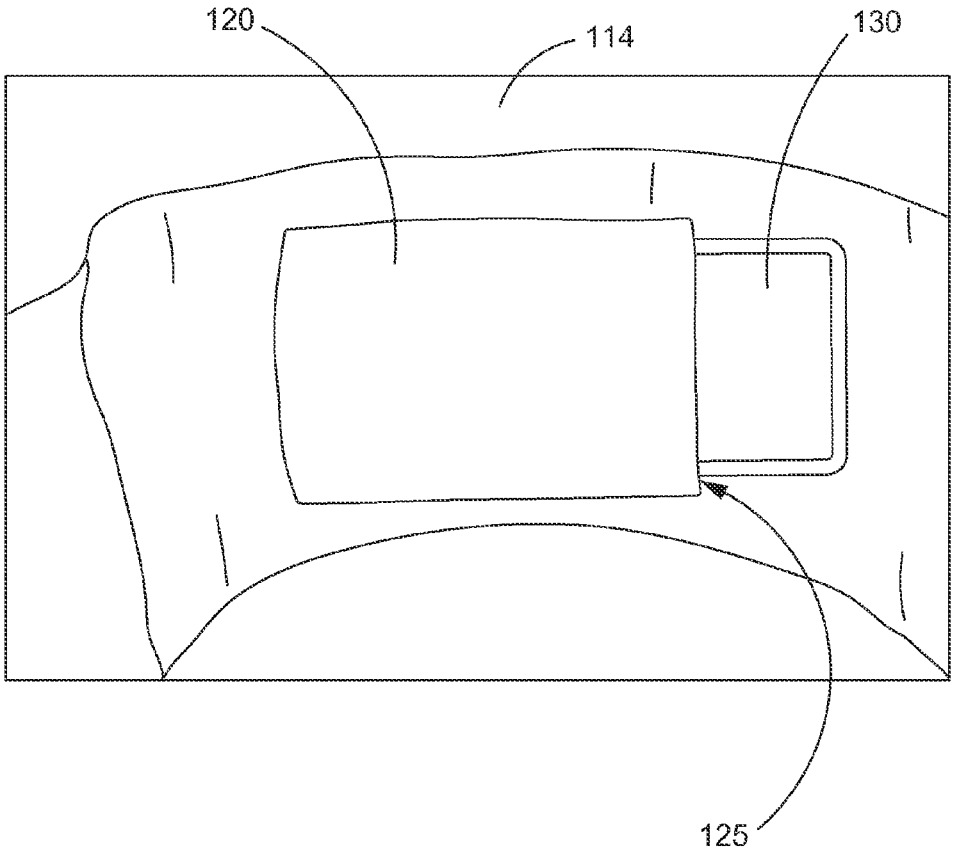
CPC ***A47G 9/0215*** (2013.01); ***A47G 9/1036*** (2013.01)

(57) **ABSTRACT**

Heat packs are incorporated into various travel and comfort items, such as pillows, blankets, and the like, in a designated pocket and/or pouch within the items to provide a user with soothing, targeted, and controlled heat in a consistent, convenient, and comfortable application. A disposable heat pack may comprise a soft, lightweight, air-permeable pouch. One side of the heat pack is air-permeable to optimally direct the targeted heat to a user. The contents of the heat pack may include a mixture of iron powder, sawdust, activated carbon, salt, water, cellulose, and vermiculite. The pocket into which the heat pack is inserted is comprised of a spandex material or the like that is lightweight, permeable, breathable, flexible, and stretchable, providing superior contact while allowing for an optimal amount of heat to permeate from the pocket to the user.



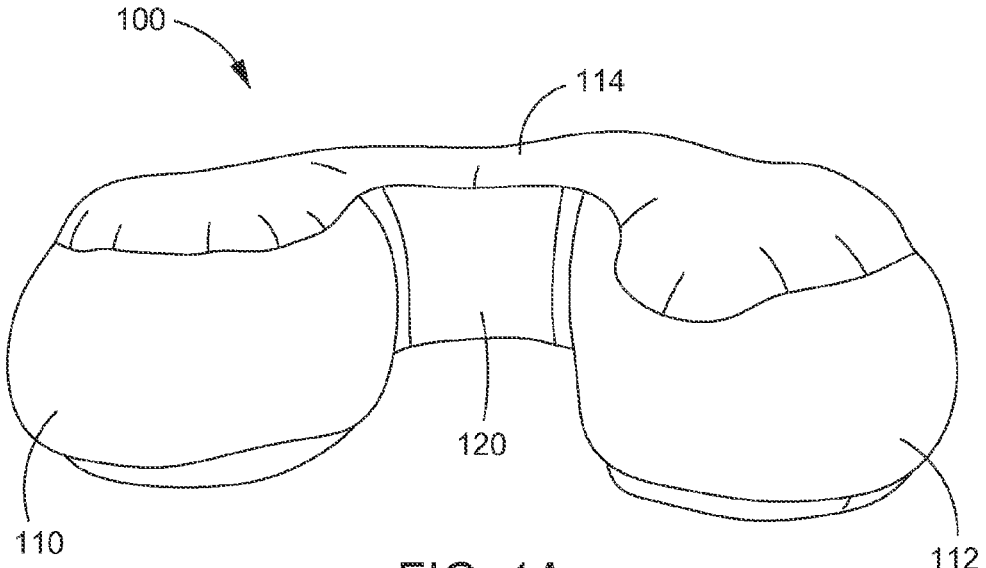


FIG. 1A

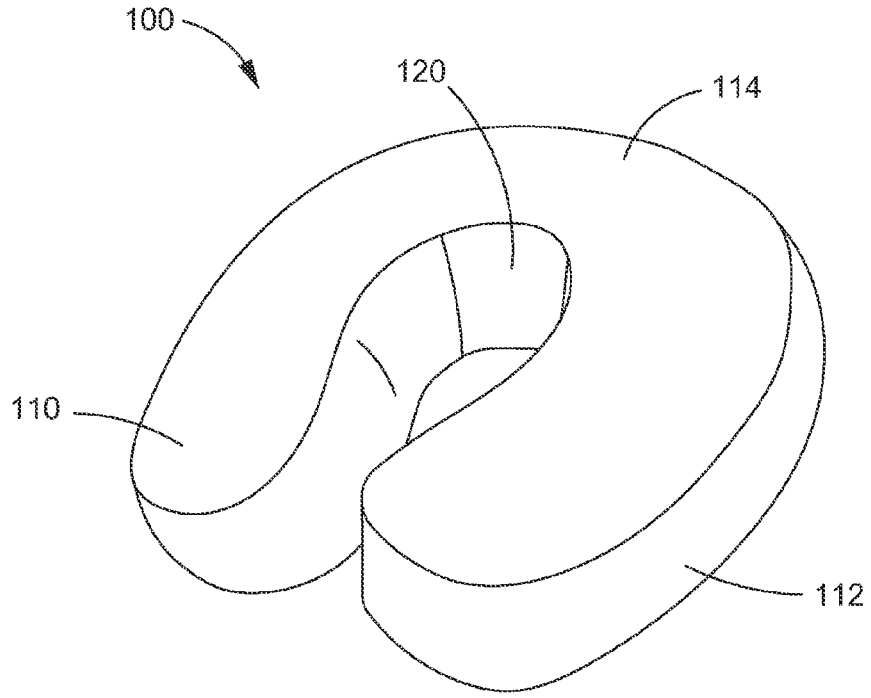


FIG. 1B

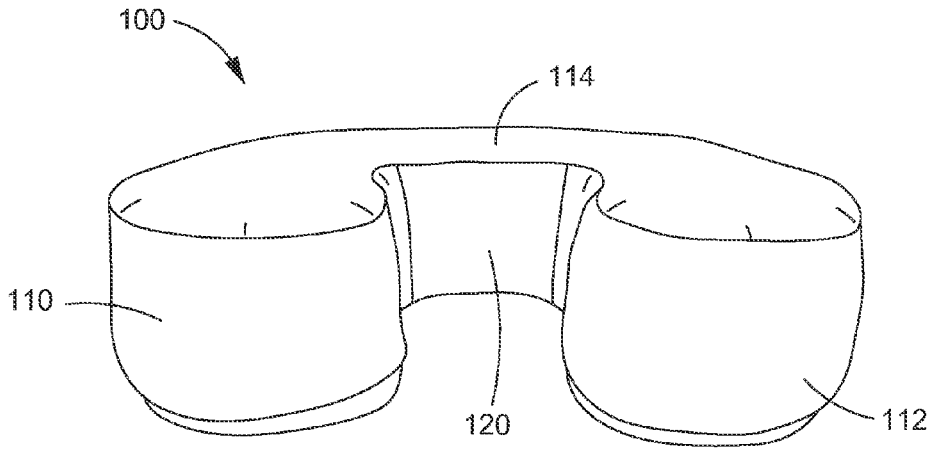


FIG. 1C

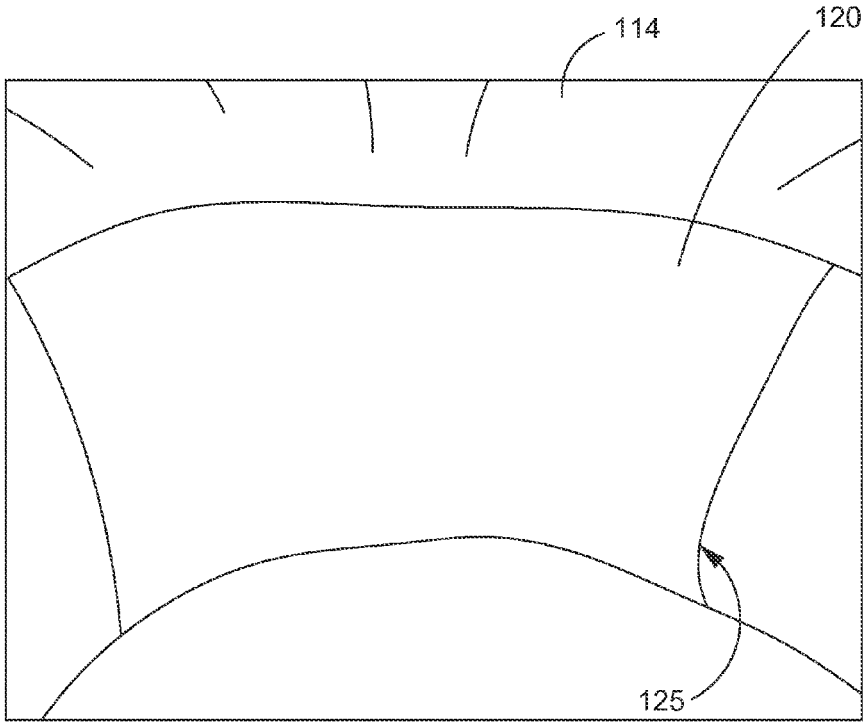


FIG. 1D

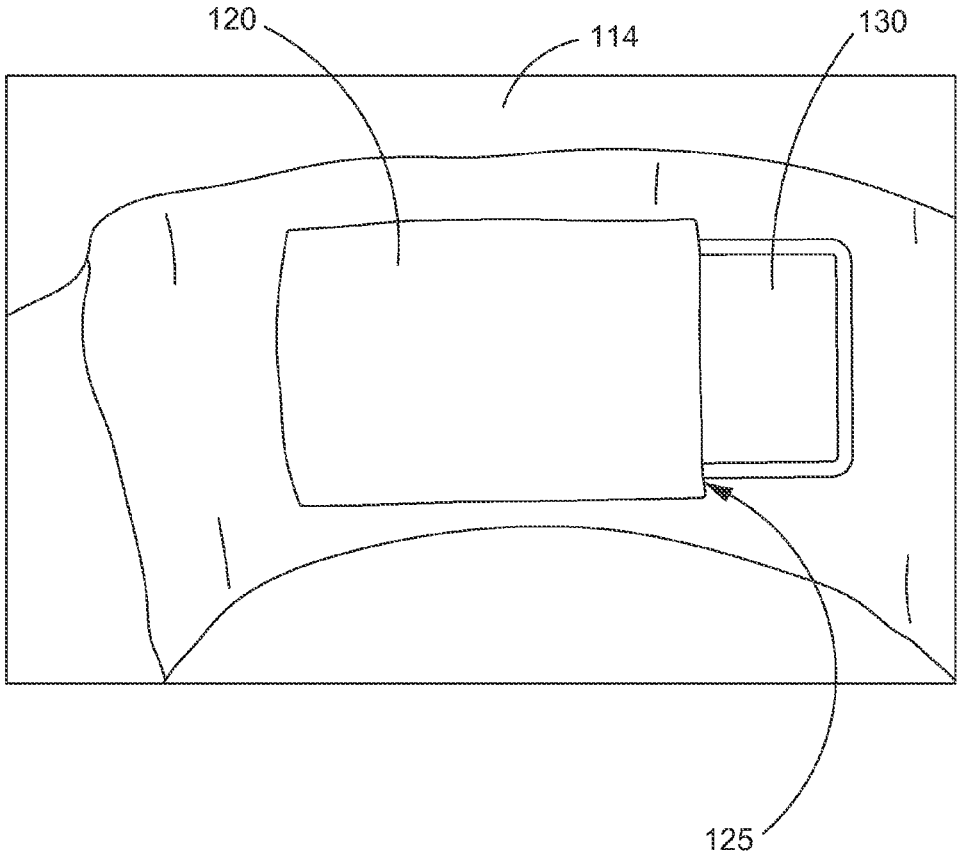


FIG. 1E

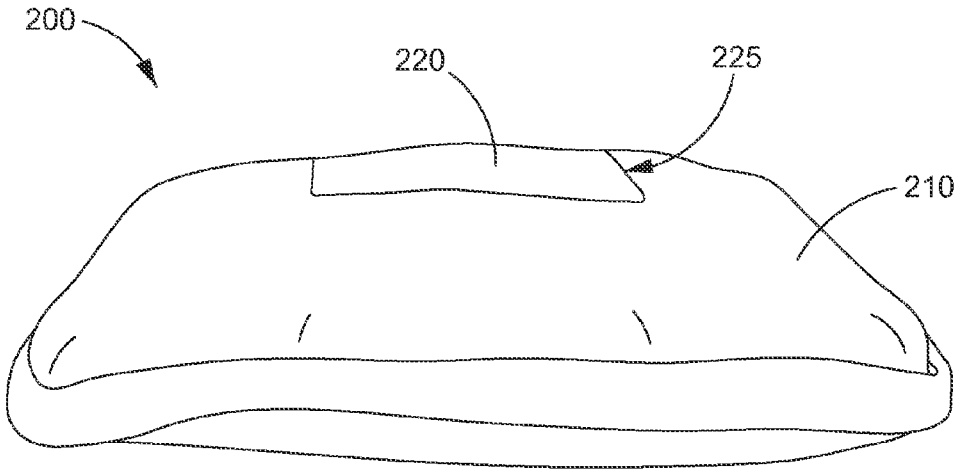


FIG. 2A

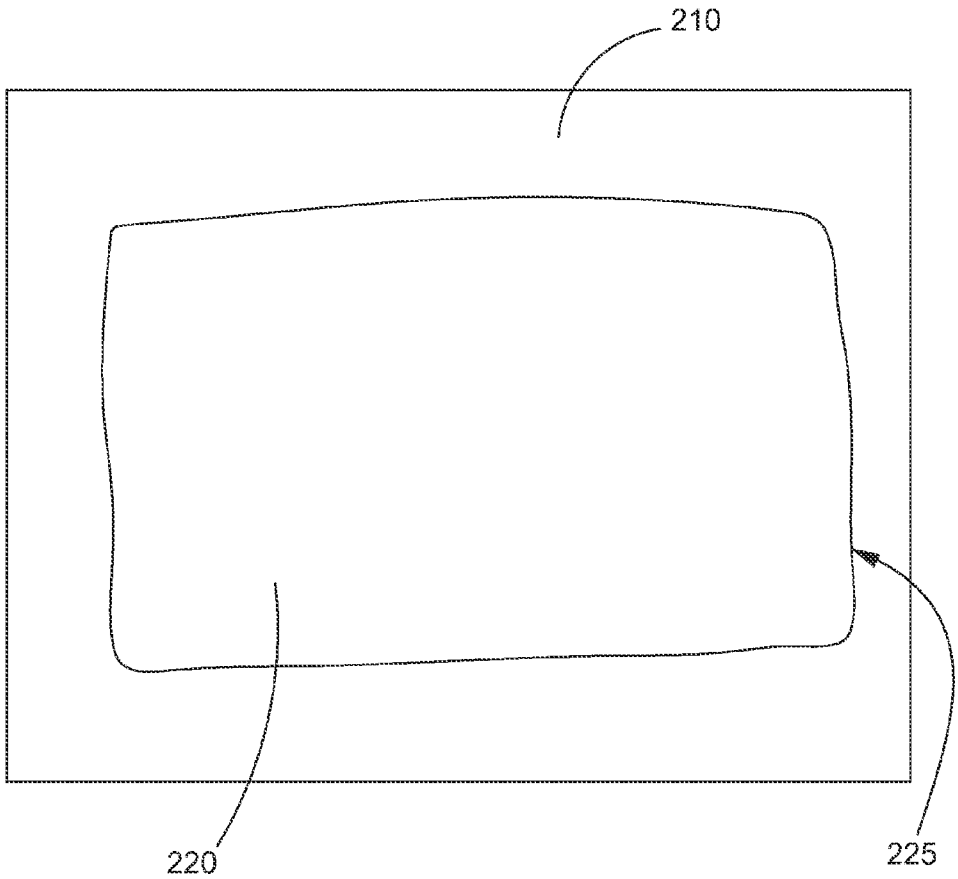


FIG. 2B

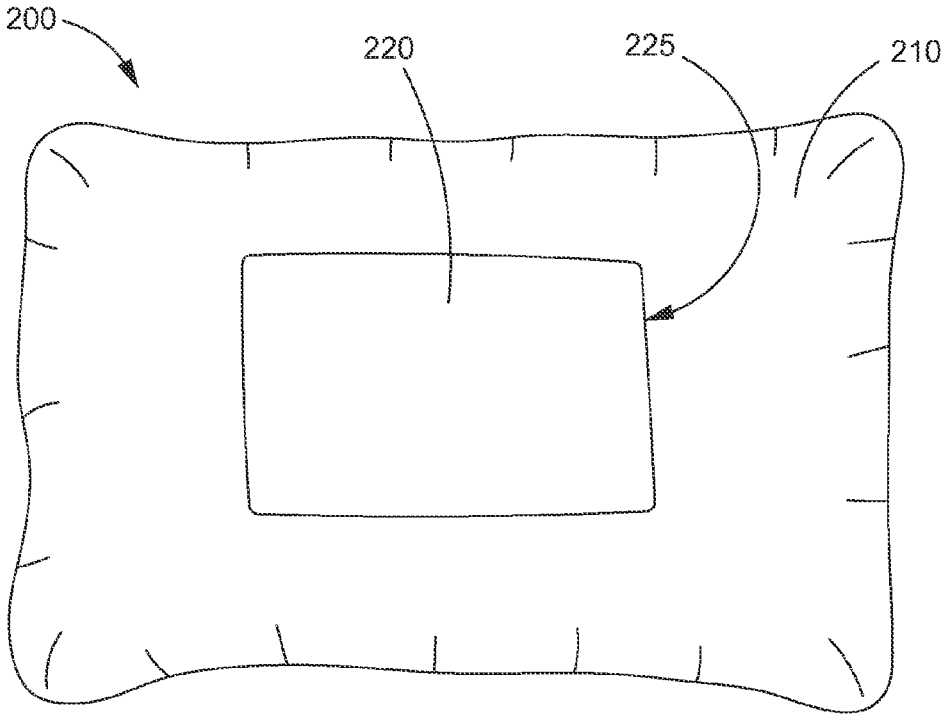


FIG. 2C

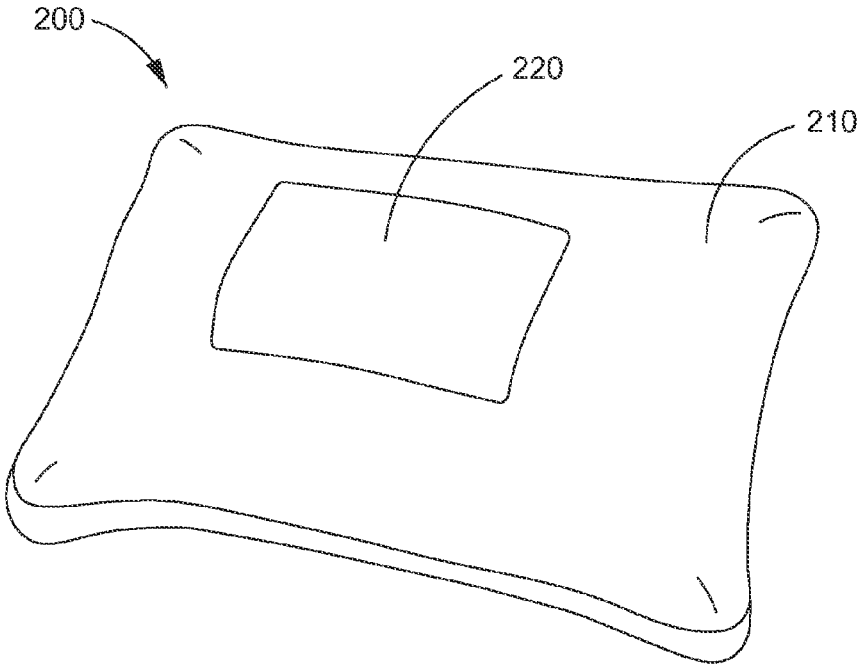


FIG. 2D

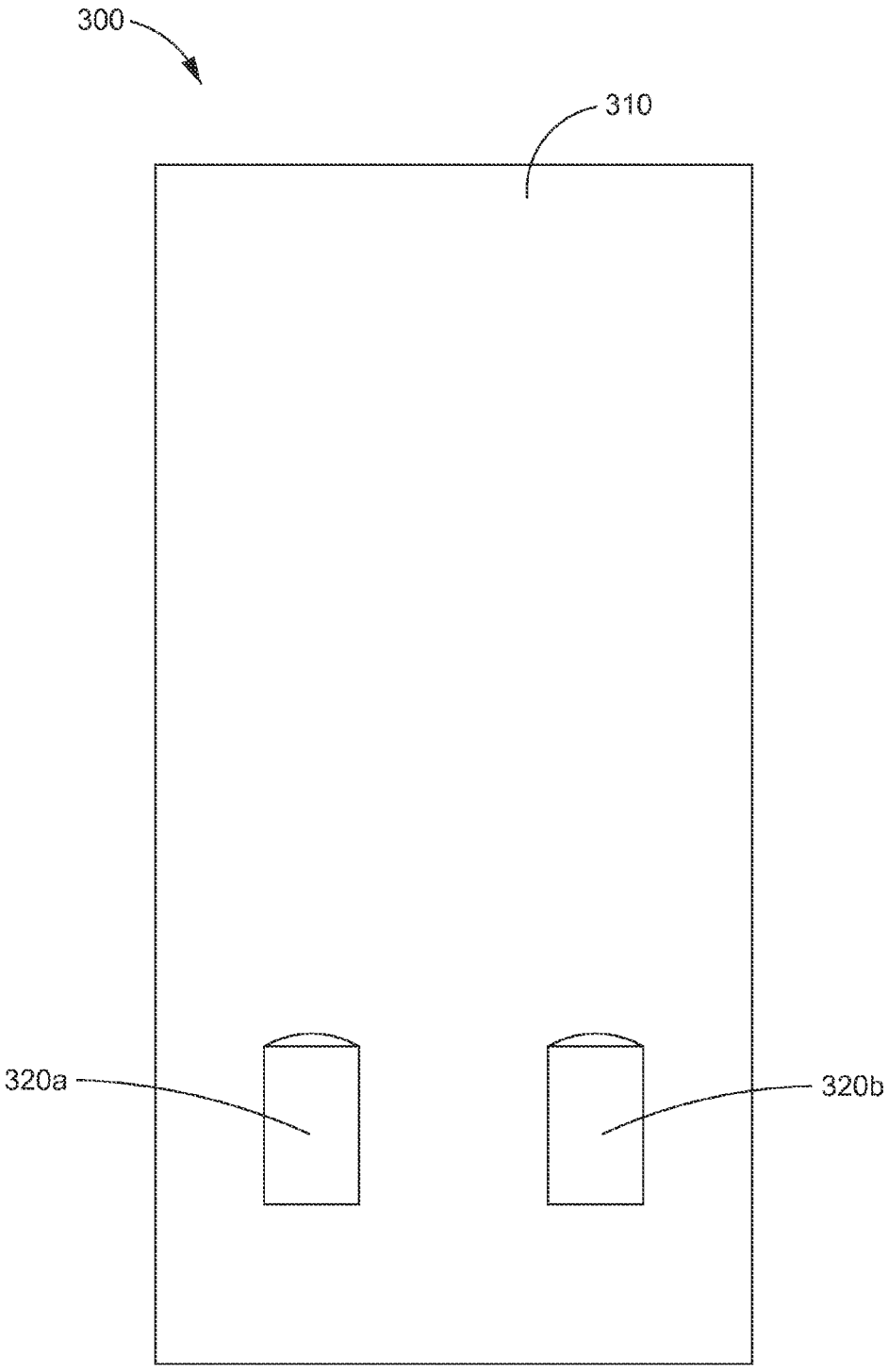


FIG. 3A

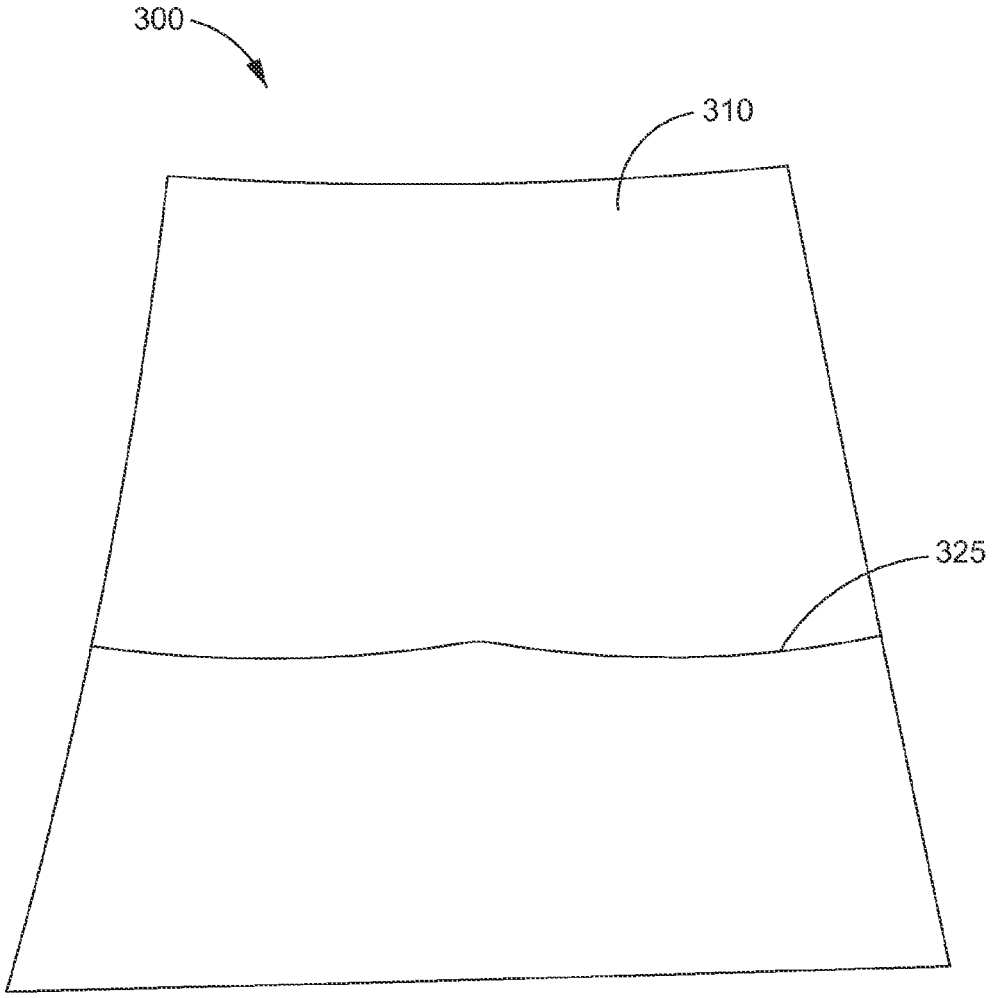


FIG. 3B

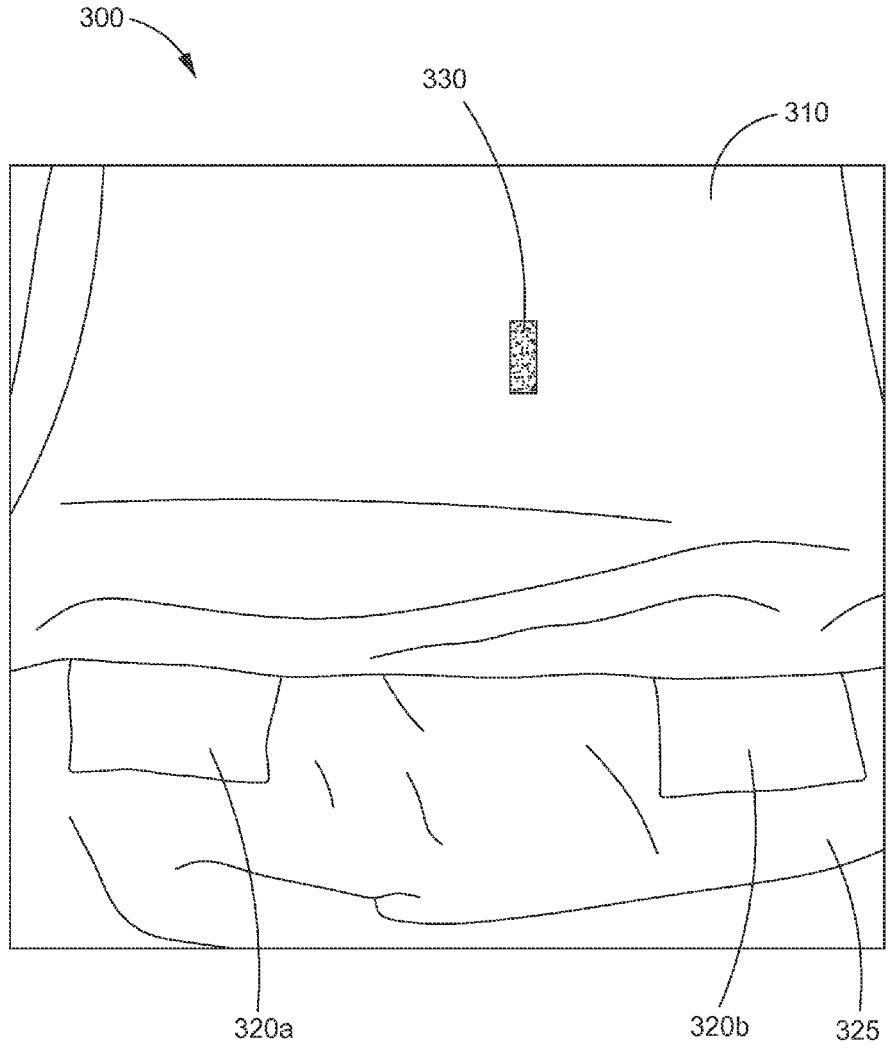


FIG. 3C

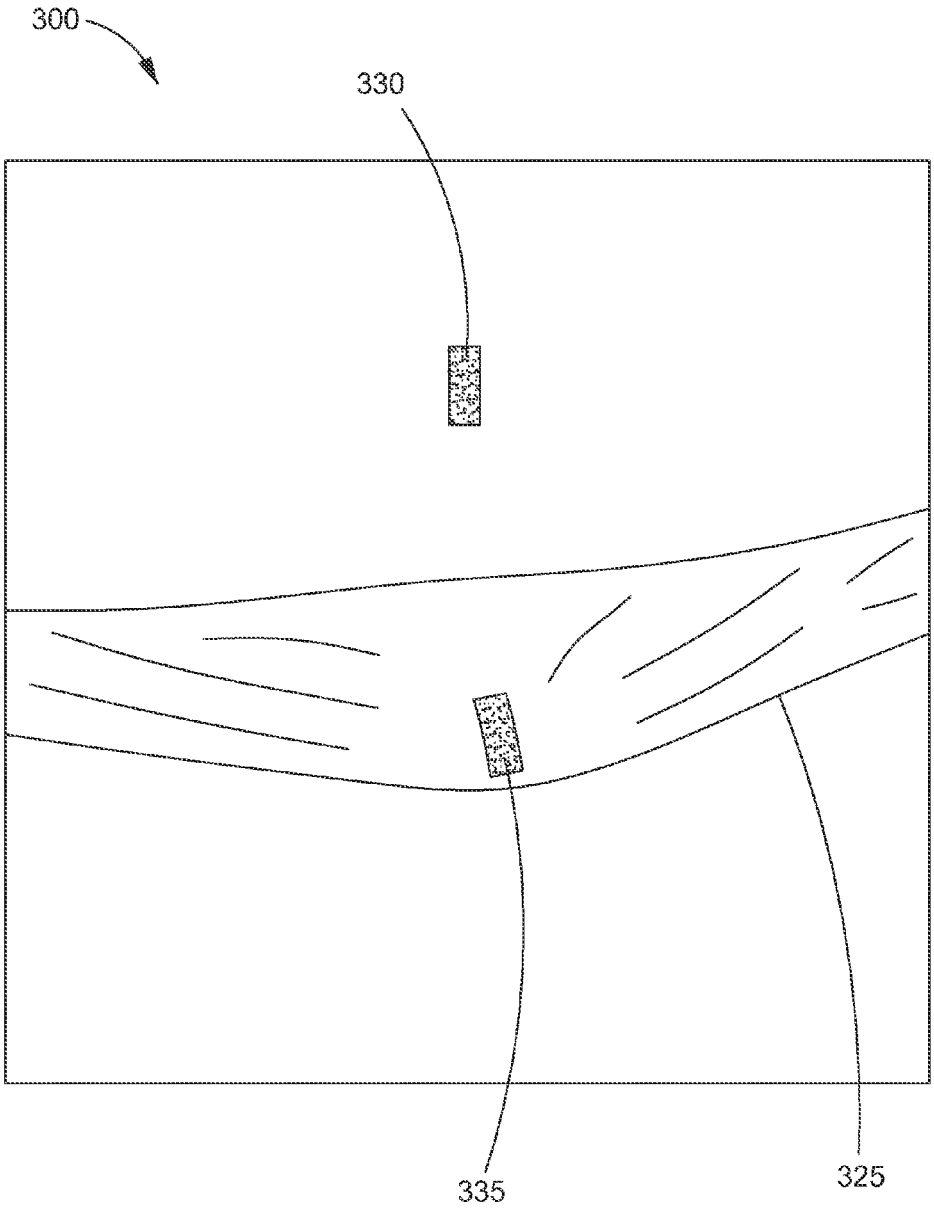


FIG. 3D

AIR-ACTIVATED HEATED TRAVEL PILLOWS AND TRAVEL BLANKETS

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to U.S. Provisional Patent Application No. 61/951,182, filed on Mar. 11, 2014 and entitled "Air-Activated Heated Travel Pillows and Travel Blankets," the contents of which are included in its entirety by reference herein.

TECHNOLOGY FIELD

[0002] The present invention relates generally to travel and comfort items, and more particularly to incorporation of heat packs into travel and comfort products and the like.

BACKGROUND

[0003] Disposable heat packs, such as air-activated heat packs safe for air travel, have not been implemented into various travel and comfort items, such as a travel neck pillow, a travel lumbar pillow, a travel-sized blanket, and the like, to provide air travelers with soothing heat. Other methods of heat, such as via USB power, battery power, electric power, silica gel, instant chemical reactions (e.g., MREs and flameless heaters), microwavable materials, hot water bottles, etc., are inefficient, require heavy power consumption, are infeasible, and/or are not allowed on various forms of transportation, such as airplanes, due to hazardous or dangerous ingredients. Therefore, there is a need to be able to provide users with heating capable items that are both safe and efficient.

SUMMARY

[0004] Embodiments of the present invention provide for the incorporation of heat packs into various travel or comfort items, such as pillows, blankets, and the like.

[0005] In one embodiment, a pillow comprises a U-shaped pillow body comprising two legs and a base therebetween, configured to receive and support a neck of a user; and one or more pockets formed on an inner radial portion of the U-shaped pillow body, wherein the inner radial portion is a portion at least partially adjacent to the neck of the user when in use. Each of the one or more pockets are configured to contain a respective heat pack for a sustained, targeted, and controlled heat transfer to the user.

[0006] In an embodiment, the U-shaped pillow body comprises one or more of foam, visco-elastic memory foam, polyurethane foam, cotton, polyester, polyester plush, spandex, micro-beads, and Polystyrene foam beads.

[0007] In another embodiment, a support pillow comprises a pillow body configured to provide support to a user; and one or more pockets formed on a contact portion of the pillow body, wherein the contact portion is a portion at least partially adjacent to the user when in use. Each of the one or more pockets are configured to contain a respective heat pack for a sustained, targeted, and controlled heat transfer to the user.

[0008] In an embodiment, the pillow body comprises one or more of foam, visco-elastic memory foam, polyurethane foam, cotton, polyester, polyester plush, spandex, micro-beads, and Polystyrene foam beads.

[0009] In an embodiment, the support pillow is a lumbar support pillow configured to provide lumbar support to a user in a lumbar region of the user's back.

[0010] According to another embodiment, a blanket is comprised of a body portion comprising a front portion and a back portion; and one or more pockets formed on one or more of the front portion and the back portion of the body portion. The one or more pockets are configured to contain a respective heat pack for a sustained, targeted, and controlled heat transfer to a user.

[0011] The body portion of the blanket may comprise at least one foldable portion, each foldable portion configured to fold over an area of the body portion containing one or more pockets. In an embodiment, the body portion of the blanket comprises one or more of polyester and spandex.

[0012] In embodiments of the pillow, the support pillow, and the blanket, the pockets may be comprised of, according to an embodiment, one or more of spandex, cotton, and polyester. One or more pockets may have one or more open ends for removably receiving and containing a respective heat pack. One or more pockets may further comprise a fastener at the one or more open ends for securing the respective heat pack therein, the fastener comprising one or more of a flap, spandex, Velcro, a snap, a button, and a zipper. According to an embodiment, one or more of the pockets may be configured to simultaneously and removably receive and contain a plurality of heat packs. In an embodiment, the pockets may be comprised of a lightweight, permeable, breathable, flexible, and/or stretchable material.

[0013] According to an embodiment, the heat pack for the pillow, the support pillow, and the blanket may comprise an air-activated, disposable heat pack. The heat pack may be comprised of one or more of iron powder, sawdust, activated carbon, salt, water, and vermiculite to generate heat via an oxidation reaction.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The foregoing and other aspects of the present invention are best understood from the following detailed description when read in connection with the accompanying drawings. For the purpose of illustrating the invention, there is shown in the drawings embodiments that are presently preferred, it being understood, however, that the invention is not limited to the specific instrumentalities disclosed. Included in the drawings are the following Figures:

[0015] FIGS. **1**A-**1**E illustrate incorporation of a heat pack in a U-shaped travel neck pillow, according to embodiments provided herein;

[0016] FIGS. **2**A-**2**D illustrate incorporation of a heat pack in a travel pillow, according to embodiments provided herein; and

[0017] FIGS. **3**A-**3**D illustrate incorporation of a heat pack in a travel-sized blanket, according to various embodiments provided herein.

DETAILED DESCRIPTION

[0018] Embodiments of the present invention relate to the incorporation of heat packs into various travel and comfort items, such as pillows, blankets, and the like. By placing a heat pack into a designated pocket or pouch within the item, a user is provided with soothing, targeted, and controlled heat in a consistent, convenient, and comfortable application.

[0019] Heat packs, also known as body warmers, heat pads, warmers, heating pads, heating packs, hand warmers, foot warmers, toe warmers, pack heat, oxygen-activated heat packs, and/or air-activated chemical warming devices, are

known to aid users in keeping parts of the body warm in cold weather environments as well as in heat therapy applications. Depending upon the chemical composition of the heat pack, a sustained, controlled heat can be generated for a period of up to 18 hours at a maximum temperature of 131-170 degrees Fahrenheit. In some embodiments, a heat pack may be disposable. In some embodiments, a heat pack may be safe for air travel. This feature allows embodiments of the present invention to meet recent increased security measures for air travel, for example.

[0020] In one embodiment, the disposable heat pack may comprise a soft, lightweight, air-permeable pouch. In one embodiment, one side of the heat pack is air-permeable to more efficiently provide and optimally direct the targeted heat to a user.

[0021] The contents of the heat pack may include, but are not limited to, a mixture of iron powder, sawdust, activated carbon, salt, and water. Other ingredients may include cellulose and vermiculite. A summary of exemplary ingredients and their role in the chemical reaction is provided below:

[0022] Iron Powder—Iron is an active ingredient in the heat pack. When the iron combines with oxygen and the other ingredients in the pack, it starts to rust at an accelerated rate. The rusting process is what gives off the heat that warms the heat pack.

[0023] Sawdust—Sawdust is used to retain and release moisture in the heat pack, which in turns aids in the dispersion of the heat from the oxidation reaction.

[0024] Activated Carbon—Activated carbon may be added to heat packs because it helps absorb the oxygen. It also prevents external odors because unpleasant smelling chemicals released during the oxidation process stick to it.

[0025] Water—Water adds to the reaction within the heat pack as it helps disperse the created heat.

[0026] Salt—Salt may be used to accelerate the oxidation process, causing the iron to rust more quickly and generate more heat.

[0027] Optional Ingredients—Vermiculite may be added and used as an insulator; it helps the heat pack retain its heat. Vermiculite also absorbs excess moisture. Cellulose may be added as a filler. It holds and releases moisture as well.

[0028] In one embodiment, a heat pack uses a specific formulation of iron powder, water, salt, activated carbon, and vermiculite filled to a predetermined maximum weight given their size to provide a quick ramp-up temperature in a comfort temperature zone (55-63 degrees Celsius), and to also provide maintenance of this temperature once reached through an elapsed time of eight hours after initial activation. This composition, based on proportion, size, weight, and heat pack materials, provides a steady heat once the temperature is obtained.

[0029] When the heat pack is removed from airtight packaging and exposed to the air, an exothermic oxidation reaction activates, generating controlled and sustained heat from the pouch. Once the iron powder within the heat pack completely oxidizes and the heat pack cools, the pouch will no longer generate heat. For this reason, the heat pack is single use and disposable.

[0030] FIGS. **1**A-**1**E illustrate incorporation of a heat zone in a U-shaped travel neck pillow **100**, according to embodiments provided herein.

[0031] In one embodiment, as shown in FIGS. **1**A, **1**B, and **1**C, a heated travel neck pillow **100** comprises a U-shaped pillow having with two leg portions **110**, **112** and a base **114** therebetween, forming a U-shaped pillow body configured to receive and support a neck of a user. The heated travel neck pillow **100** also includes one or more pockets **120** formed on an inner radial portion of the U-shaped pillow body, where the inner radial portion is a portion at least partially adjacent to the neck of the user when in use (see close-up view in FIG. **1**D). The one or more pockets **120** are each configured to contain (via an opening or insert **125**) a respective heat pack **130** for a sustained, targeted, and controlled heat transfer to the user (see FIG. **1**E); and the one or more pockets **120** comprise a built-in heat zone on the inner radial surface of the heated travel neck pillow **100**. Features of the pocket **120**, the opening or insert **125**, and the heat pack **130** are described in greater detail below.

[0032] In one embodiment, the pillow **100** comprises a U-shaped pillow having the built-in heat zone on the inner middle surface (on the base **114**) and the inner side surfaces (on leg portion **110** and/or **112**) of the U-shaped pillow.

[0033] In some embodiments (see FIG. **1**A), the pillow features a soft, plush material on three sides and a flexible spandex bottom so internal micro-beads can shape to and support the neck of a user. In one embodiment, the material of the heated travel pillow comprises the following composition: Outer Shell: 94% Polyester, 6% Spandex; and Filling: 100% Polystyrene Foam Beads.

[0034] In some embodiments (see FIGS. **1**B and **1**C), the heated travel neck pillow **100** is comprised of a supportive memory foam core and a soft, plush material on all sides (i.e., a heated travel memory foam neck pillow). In one embodiment, the material of the heated travel memory foam pillow comprises the following composition: Outer Shell: 99% Polyester, 1% Spandex; and Filling: 100% Polyurethane Foam.

[0035] FIGS. **2**A-**2**D illustrate incorporation of a heat zone in a travel pillow, according to embodiments provided herein.

[0036] In one embodiment, a heated travel pillow **200** is used to support a user's back, such as a lumbar region of the user's back. In another embodiment, the heated travel pillow **200** is used to support a user's neck. In other embodiments, the heated travel pillow **200** can be used in other regions desirable for the user, such as an upper region of the user's back. The heated travel pillow **200** may feature a soft, velvety plush on three sides and a flexible spandex bottom, allowing internal micro-beads to shape to the user. The heated travel pillow **200** includes one or more pockets **220** formed on a contact portion **210** of the pillow **200**, where the contact portion **210** is a portion at least partially adjacent to the user when in use. The one or more pockets **220** are each configured to contain (via an opening or insert **225**) a respective heat pack for a sustained, targeted, and controlled heat transfer to the user; and the one or more pockets **220** with the heat pack comprise a built-in heat zone on the contact portion **210** of the heated travel pillow **200**. Features of the pocket **220**, the opening or insert **225**, and the heat pack are described in greater detail below.

[0037] In one embodiment, the material of the heated travel pillow comprises the following composition: Outer Shell: 94% Polyester, 6% Spandex; and Filling: 100% Polystyrene Foam Beads.

[0038] FIGS. **3**A-**3**D illustrate incorporation of heat zones in a travel-sized blanket, according to various embodiments provided herein.

[0039] In one embodiment, a heated travel-sized blanket **300** has one or more built-in heat zones to keep feet warm. In

another embodiment, the heat zone portions may be used to warm a user's neck and/or chest. The heat zone may be comprised of one or more pockets **320***a*, **320***b* at a bottom portion of a side **310** of the blanket **300** to correspond with a position of a user's feet, for example (see FIG. **3**A). This allows for the user to place the balls of their feet on each of the heat zones and then wrap blanket around them to stay warm.

[0040] In another embodiment, a large foot pouch **325** is provided with one or more heat zones within the pouch to keep feet warm (see FIGS. **3**B, **3**C, and **3**D). In this embodiment, one side of the blanket may be folded over to create the pouch **325**, and separate inner pockets **320***a*, **320***b* are configured to hold the heat packs. One or more fasteners **330**, **335** may be provided to secure the pouch **325**, allowing for the user to insert his or her feet into the pouch **325** near or on the pockets **320***a*, **32***b*, and then close the pouch **325**.

[0041] In one embodiment, the heated travel blanket is comprised of 98% Polyester, 2% Spandex.

[0042] According to embodiments, the entire item (e.g., heated travel neck pillow **100**, heated travel pillow **200**, heated travel-sized blanket **300**) in which the heat pack is incorporated is not heated. For example, in the case of a heated U-shaped travel neck pillow (e.g., the heated travel neck pillow **100**), a designated 'heat zone' comprises an area that comes into contact with the back of the user's neck. This 'heat zone' may feature a sewn-in, or otherwise attached (e.g., glued on), pocket or pouch (e.g., pocket **120**), which may be fastened at one or more open ends **125** by Velcro, zipper, spandex, elastic, snaps, buttons, or the like. The user activates the heat pack **130** by exposing it to air, and then places it within the pocket **120** on the item. The activated heat pack **130** warms the 'heat zone' to provide soothing heat for a sustained period of time in a targeted area during the user's trip, when relaxing at home, or whenever used by the user.

[0043] In one embodiment, the pocket (e.g., the pocket **120**, **220**, **320***a*, **320***b*) is comprised of a lightweight material. In one embodiment, the pocket is a permeable/breathable material. In one embodiment, the pocket is a flexible material. In another embodiment, the pocket is a stretchable material. In one embodiment, the pocket is comprised of a spandex material or the like that is lightweight, permeable, breathable, flexible, and stretchable. These properties of the material (e.g., spandex) provide superior contact with the user, while allowing for an optimal amount of heat to permeate from the pocket to the user to optimize warmth. Moreover, an optimal air flow is achieved due to the permeability of the pocket.

[0044] The geometry of the pocket is such that the heat pack fits within while having sufficient breathing room and tautness to allow for maximum permeability. Thus, the material of the pocket and the geometry of the pocket provide a 'heat zone' with a sustained, targeted, and controlled heat transfer to a specific area of the user's body.

[0045] In another embodiment, vertical and/or horizontal ribbing may be provided within the pocket to enhance air flow and in particular enhance two-way air flow. The ribbing may be provided in one or more portions of the pocket and on one or both internal sides of the pocket.

[0046] Use of a flexible and/or stretchable material allows for ease of insertion of a new heat pack, ease of removal of an exhausted heat pack, support to keep the activated heat pack in place to target the generated heat, and transfer the heat generated to an area on the user's body providing sustained, controlled warmth. The flexible/stretchable material may be expanded by, for example, a user's hand to allow for easy insertion of the heat pack, may return to its original shape or position to help hold the heat pack in place during use, and then expand again to facilitate removal of the exhausted heat pack.

[0047] As the heat packs are generally designed to be single use and disposable, the heat pack is easily removed from the item's 'heat zone' pocket, so a new one can replace an exhausted pack at a later time, such as the return leg of the user's trip. With this in mind, for sales considerations, the item may be bundled with two or more heat packs for the customer to use. Refill packs may also be merchandised as a separate complementary item.

[0048] In one embodiment, the built-in heat zone comprises a pocket with a heat pack disposed therein. In one embodiment, the built-in heat zone comprises one or more pockets with one or more heat packs disposed within each of the one or more pockets. In another embodiment, the built-in heat zone comprises a plurality of pockets with one or more heat packs disposed within each pocket.

[0049] In one embodiment, the heat packs are sized and shaped to fit within a 3"×5" heat zone (e.g., pocket) without bunching or folding; in this particular embodiment, the size of the heat pack is 2.75" H×4.50" W. In another embodiment, the heat pack is roughly 2.75" H×3.75" W, with the pocket accordingly sized to receive and contain the heat pack. In other embodiments, if other sized heat packs are utilized, the pocket is sized with a specific alignment and geometry to the heat pack to provide for sufficient breathing room and tautness for maximum permeability.

[0050] Although the present invention has been described with reference to exemplary embodiments, it is not limited thereto. Those skilled in the art will appreciate that numerous changes and modifications may be made to the preferred embodiments of the invention and that such changes and modifications may be made without departing from the true spirit of the invention. It is therefore intended that the appended claims be construed to cover all such equivalent variations as fall within the true spirit and scope of the invention. For example, the application of various embodiments is not limited to travel items and can also be applied to any number of items that provide comfort/relaxation in the home, during travel, and the like.

1. A pillow comprising:

a U-shaped pillow body comprising two legs and a base therebetween, configured to receive and support a neck of a user;

a pocket formed on an inner radial portion of the base of the U-shaped pillow body, wherein the pocket is adjacent to a back portion of the neck of the user when in use;

wherein the pocket is at least partially formed by a lightweight, permeable, breathable, flexible, stretchable material; and

a heat pack contained in the pocket for a sustained, targeted, and controlled heat transfer to the user, wherein the heat pack is a disposable, air-activated heat pack comprising an air-permeable pouch to facilitate airflow into the heat pack and direct heat to the user via the pocket.

2. The pillow of claim **1**, wherein the U-shaped pillow body comprises one or more of foam, visco-elastic memory foam, polyurethane foam, cotton, polyester, polyester plush, spandex, micro-beads, and Polystyrene foam beads.

3. The pillow of claim **1**, wherein the pocket is comprised of one or more of spandex, cotton, and polyester.

4. (canceled)

5. The pillow of claim 1, wherein the heat pack comprises one or more of iron powder, sawdust, activated carbon, salt, water, and vermiculite to generate heat via an oxidation reaction.

6. The pillow of claim 1, wherein the pocket comprises one or more open ends for removably receiving and containing the heat pack.

7. The pillow of claim 6, wherein the pocket further comprises a fastener at the one or more open ends for securing the heat pack therein, the fastener comprising one or more of a flap, spandex, Velcro, a snap, a button, and a zipper.

8. The pillow of claim 1, wherein the pocket is configured to simultaneously and removably receive and contain a plurality of heat packs.

9. (canceled)

10. A support pillow comprising:

a pillow body configured to provide support to a user; and

one or more pockets formed on a contact portion of the pillow body, wherein the contact portion is a portion at least partially adjacent to the user when in use;

wherein each of the one or more pockets are configured to contain a respective heat pack for a sustained, targeted, and controlled heat transfer to the user.

11. The pillow of claim 10, wherein the pillow body comprises one or more of foam, visco-elastic memory foam, polyurethane foam, cotton, polyester, polyester plush, spandex, micro-beads, and Polystyrene foam beads.

12. The pillow of claim 10, wherein the one or more pockets are comprised of one or more of spandex, cotton, and polyester.

13. The pillow of claim 10, wherein the heat pack comprises an air-activated, disposable heat pack.

14. The pillow of claim 10, wherein the heat pack comprises one or more of iron powder, sawdust, activated carbon, salt, water, and vermiculite to generate heat via an oxidation reaction.

15. The pillow of claim 10, wherein the one or more pockets comprise one or more open ends for removably receiving and containing the respective heat pack.

16. The pillow of claim 15, wherein the one or more pockets further comprise a fastener at the one or more open ends for securing the respective heat pack therein, the fastener comprising one or more of a flap, spandex, Velcro, a snap, a button, and a zipper.

17. The pillow of claim 10, wherein one or more of the one or more pockets are configured to simultaneously and removably receive and contain a plurality of heat packs.

18. The pillow of claim 10, wherein each of the one or more pockets are comprised of one or more of a lightweight, permeable, breathable, flexible, and stretchable material.

19. The pillow of claim 10, wherein the pillow body is configured to provide lumbar support in a lumbar region of the user's back.

20. A blanket comprising:

a body portion comprising a front portion and a back portion; and

one or more pockets formed on one or more of the front portion and the back portion of the body portion;

wherein the one or more pockets are configured to contain a respective heat pack for a sustained, targeted, and controlled heat transfer to a user.

21. The blanket of claim 20, wherein the body portion further comprises at least one foldable portion, each foldable portion configured to fold over an area of the body portion containing one or more pockets.

22. The blanket of claim 20, wherein the body portion comprises one or more of polyester and spandex.

23. The blanket of claim 20, wherein the one or more pockets are comprised of one or more of spandex, cotton, and polyester.

24. The blanket of claim 20, wherein the heat pack comprises an air-activated, disposable heat pack.

25. The blanket of claim 20, wherein the heat pack comprises one or more of iron powder, sawdust, activated carbon, salt, water, and vermiculite to generate heat via an oxidation reaction.

26. The blanket of claim 20, wherein the one or more pockets comprise one or more open ends for removably receiving and containing the respective heat pack.

27. The blanket of claim 26, wherein the one or more pockets further comprise a fastener at the one or more open ends for securing the respective heat pack therein, the fastener comprising one or more of a flap, spandex, Velcro, a snap, a button, and a zipper.

28. The blanket of claim 20, wherein one or more of the one or more pockets are configured to simultaneously and removably receive and contain a plurality of heat packs.

29. The blanket of claim 20, wherein each of the one or more pockets are comprised of one or more of a lightweight, permeable, breathable, flexible, and stretchable material.

30. The pillow of claim 1, wherein the pocket is sized and shaped to provide air flow to and from the heat pack contained therein.

31. The pillow of claim 1, wherein the pocket further comprises ribbing on at least one internal portion of the pocket, for enhancing air flow of the heat pack within the pocket.

32. The pillow of claim 1, wherein the U-shaped pillow body comprises:

an outer covering comprising (i) a flexible spandex bottom portion substantially adjacent to shoulders of the user, and (ii) a plush material on side and top portions of the U-shaped pillow body; and

a plurality of micro-beads internal to the outer covering, wherein the micro-beads conform to and support the neck of the user.

33. The pillow of claim 1, wherein the U-shaped pillow body comprises:

an outer covering comprising a plush material; and

a supportive memory foam core internal to the outer covering.

34. The pillow of claim 1, further comprising:

one or more supplemental pockets formed on the inner radial portion of the U-shaped pillow body, wherein the one or more supplemental pockets are adjacent to a portion of the neck of the user; and

one or more supplemental heat packs contained in respective ones of the one or more supplemental pockets for a sustained, targeted, and controlled heat transfer to the user.

35. The pillow of claim 1, wherein the heat pack is formulated to reach a targeted temperature and maintain the targeted temperature for approximately eight hours.

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