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(54) **COOL STRIP**

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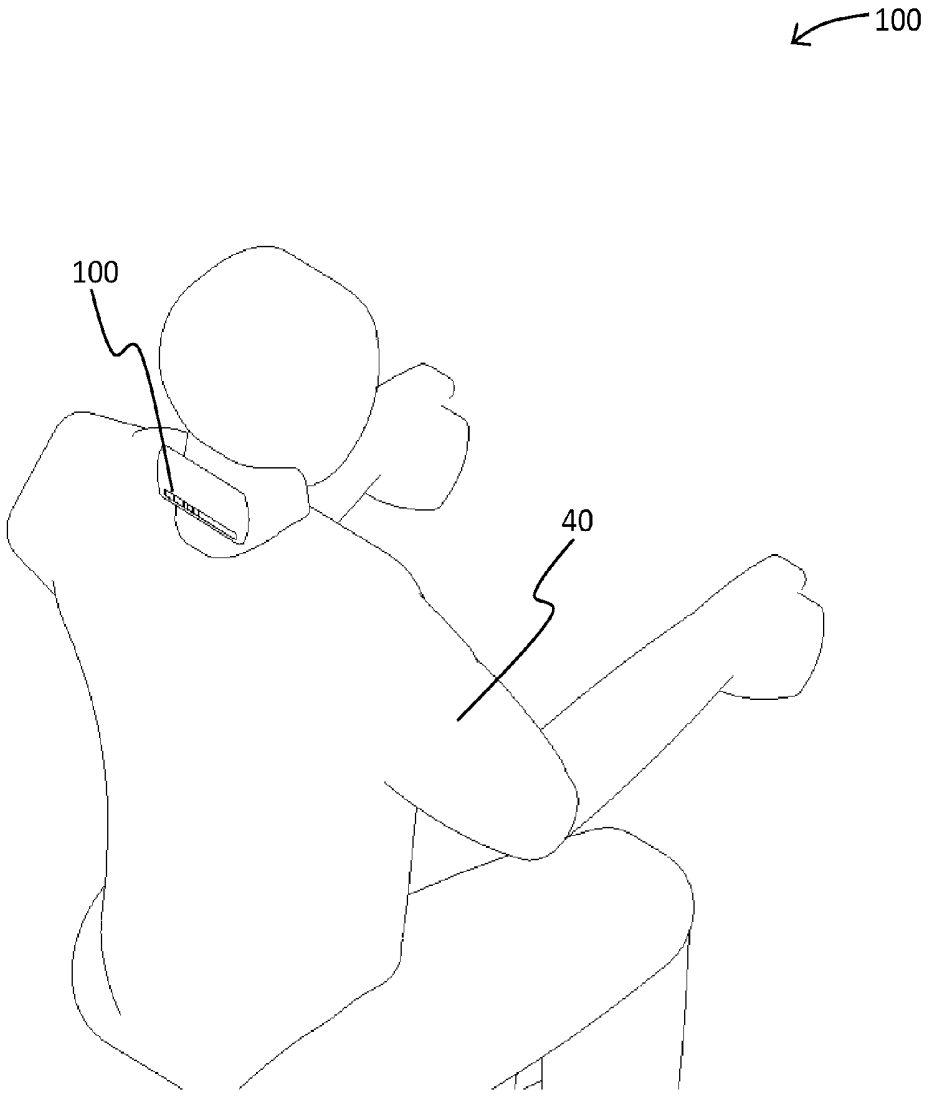
(57) **ABSTRACT**

A cooling device is disclosed herein. The disclosed cooling device comprises a sensor or thermometer that indicates body temperature and contains an activatable cooler. In some versions, the disclosure discusses an activatable cooler comprising water and an endothermic salt. The device is designed to promote safety and comfort of the user-wearer.



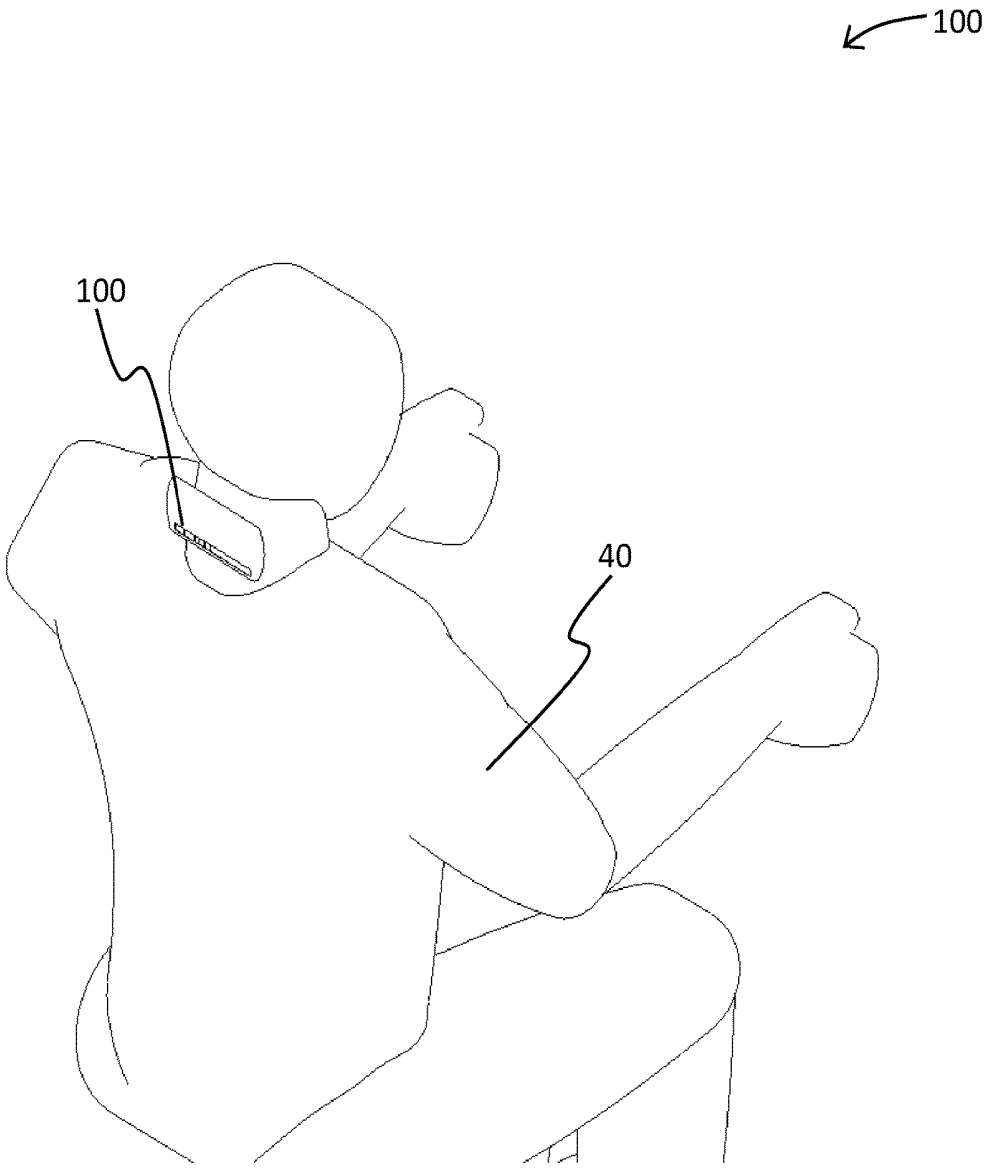


FIG. 1

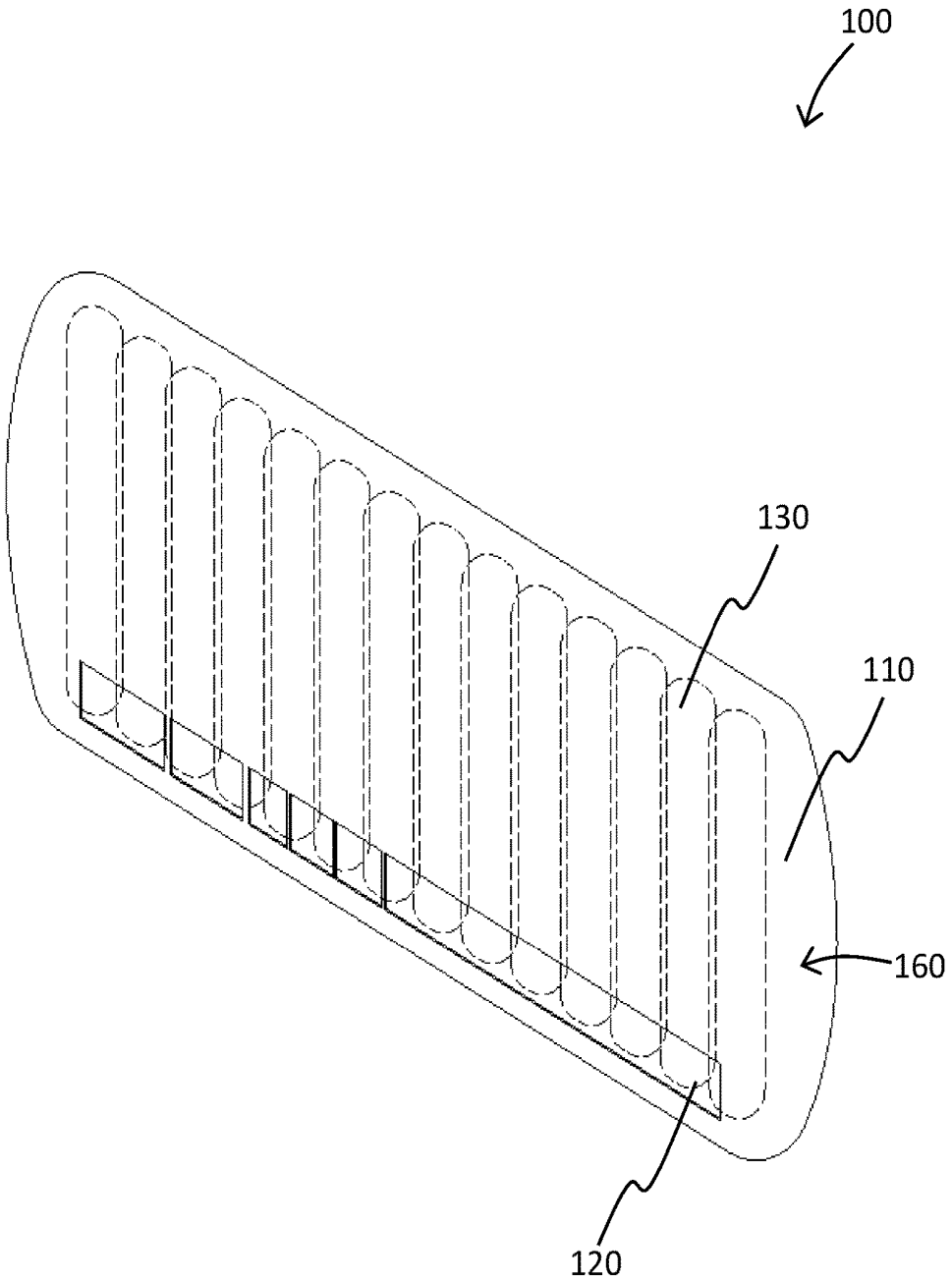


FIG. 2

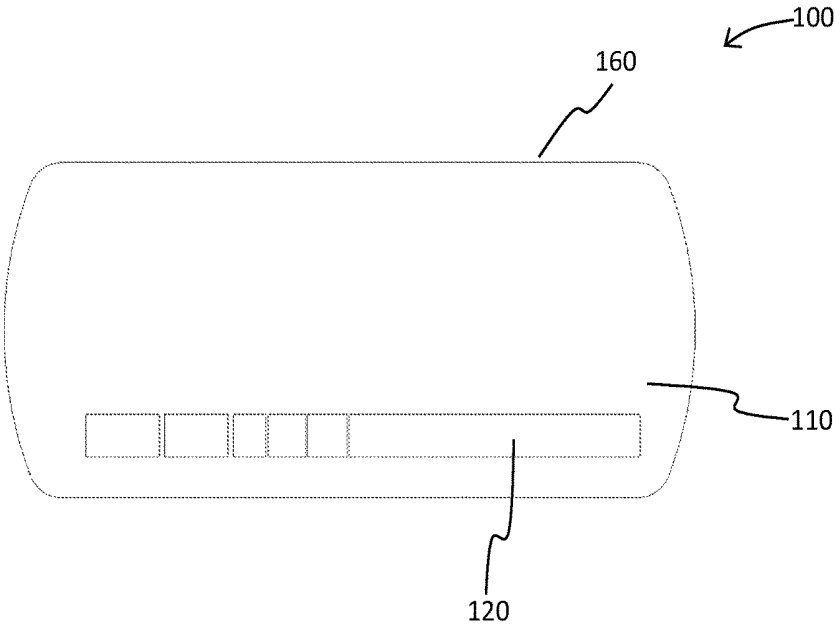


FIG. 3A

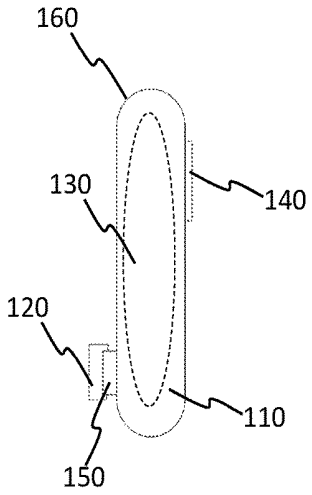


FIG. 3B

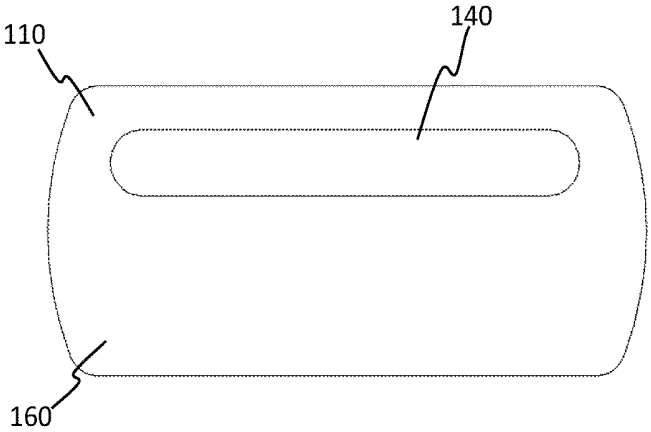


FIG. 3C

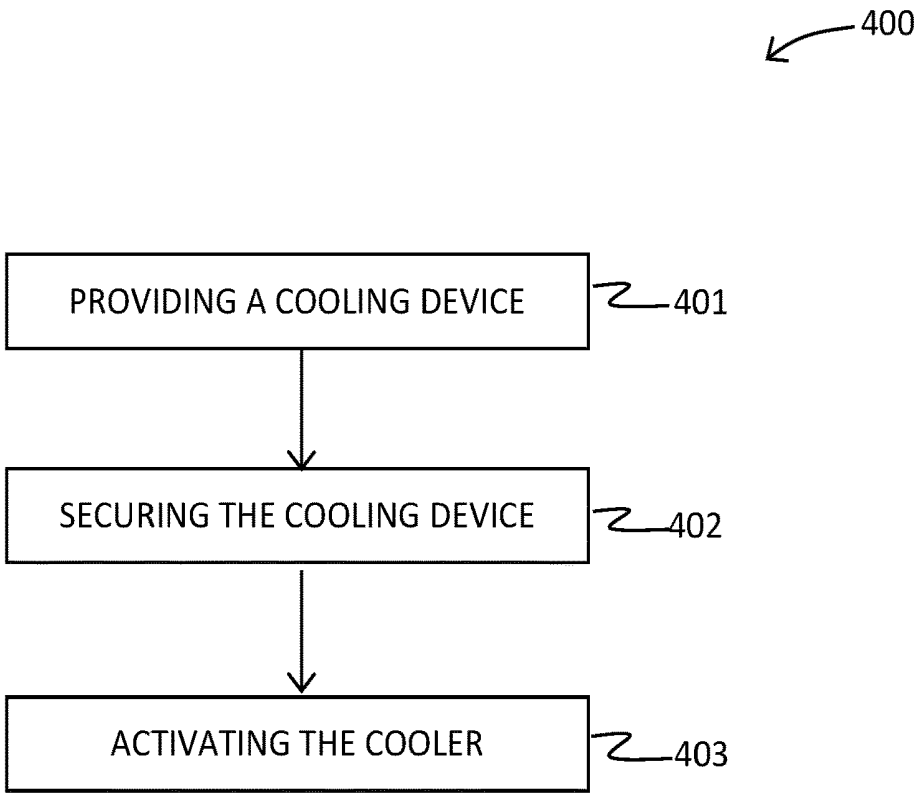

400
PROVIDING A COOLING DEVICE
401
SECURING THE COOLING DEVICE
402
ACTIVATING THE COOLER
403

FIG. 4

COOL STRIP

CROSS REFERENCE TO RELATED APPLICATION

[0001] The present application is related to and claims priority to U.S. Provisional Patent Application No. 62/511,874 filed May 26, 2017, which is incorporated by reference herein in its entirety.

BACKGROUND OF THE INVENTION

[0002] The following includes information that may be useful in understanding the present disclosure. It is not an admission that any of the information provided herein is prior art nor material to the presently described or claimed inventions, nor that any publication or document that is specifically or implicitly referenced is prior art.

1. FIELD OF THE INVENTION

[0003] The present invention relates generally to the field of wearable cooling devices and more specifically relates to instant cold packs.

2. DESCRIPTION OF RELATED ART

[0004] Heat-related illness is a spectrum of disorders due to environmental exposure to heat. It includes minor conditions such as heat cramps, heat syncope, and heat exhaustion as well as the more severe condition known as heat stroke. Preventive measures include drinking plenty of cool liquids and avoiding excessive heat and humidity. Treatment requires rapid physical cooling of the body.

[0005] U.S. Pat. No. 8,061,891 to Lin et al. relates to an adhesive thermometer. The described adhesive thermometer includes an adhesive thermometer, comprising: a sense unit, a display unit and an attachment unit, where the display unit and the sense unit are combined into a rectangular parallelepiped, and the display unit is located at the top while the sense unit at the bottom. The attachment unit is formed by an adhesive pad and the rectangular parallelepiped, which makes the sense unit to be disposed for exposing downward. The bottom of the adhesive pad is provided with gluey substance and a protective pad is stuck to the gluey substance for temporary attachment. When using, simply tear down the protective pad and stick the thermometer to both ends of a measured location by means of the exposed gluey substance and adhere the sense unit to the measured location to sense the temperature, followed by exhibiting the sensed temperature at the display unit in terms of different message types: numeral, color, sound or odor.

[0006] Such thermometers can send skin temperature of a patient but are unable to counter those temperatures when the temperatures reach dangerous levels. A sensing device combined with the treating device is needed.

BRIEF SUMMARY OF THE INVENTION

[0007] In view of the foregoing disadvantages inherent in the known wearable cooling device art, the present disclosure provides a novel cool strip or cooling device. The general purpose of the present disclosure, which will be described subsequently in greater detail, is to provide a cooling device that indicates body temperature and contains an activatable cooler.

[0008] A cooling device is disclosed herein. The cooling device includes a pouch; an activatable cooler disposed in the pouch; substrate disposed in the pouch; a thermometer affixed to the pouch; and a connector on an outer surface of the pouch wherein the connector secures the pouch to a body region.

[0009] A method of using cooling devices is also disclosed herein. The method of using cooling devices may comprise the steps of: providing a cooling device including a pouch; an activatable cooler disposed in the pouch; substrate disposed in the pouch; a thermometer affixed to the pouch; and a connector on an outer surface of the pouch wherein the connector secures the pouch to a body region. Other steps include securing the cooling device to a body region and activating a cooler.

[0010] For purposes of summarizing the invention, certain aspects, advantages, and novel features of the invention have been described herein. It is to be understood that not necessarily all such advantages may be achieved in accordance with any one embodiment of the invention. Thus, the invention may be embodied or carried out in a manner that achieves or optimizes one advantage or group of advantages as taught herein without necessarily achieving other advantages as may be taught or suggested herein. The features of the invention which are believed to be novel are particularly pointed out and distinctly claimed in the concluding portion of the specification. These and other features, aspects, and advantages of the present invention will become better understood with reference to the following drawings and detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The figures which accompany the written portion of this specification illustrate embodiments and methods of use for the present disclosure, a cool strip, constructed and operative according to the teachings of the present disclosure.

[0012] FIG. **1** is a perspective view of the cooling device during an 'in-use' condition, according to an embodiment of the disclosure.

[0013] FIG. **2** is a perspective view of the cooling device of FIG. **1**, according to an embodiment of the present disclosure.

[0014] FIG. **3**A is a front view of the cooling device of FIG. **1**, according to an embodiment of the present disclosure.

[0015] FIG. **3**B is a left side view of a version of the cooling device of FIG. **1**;

[0016] FIG. **3**C is a rear view of a version of the cooling device of FIG. **1**.

[0017] FIG. **4** is a flow diagram illustrating a method of use for the cooling device, according to an embodiment of the present disclosure.

[0018] The various embodiments of the present invention will hereinafter be described in conjunction with the appended drawings, wherein like designations denote like elements.

DETAILED DESCRIPTION

[0019] As discussed above, embodiments of the present disclosure relate to a wearable cooling device and more particularly to a cool strip as used to improve the instant cold packs.

[0020] Generally, the present invention provides users with a small gel cooling patch or strip designed to reduce body temperature when applied to the neck, armpits, or groin area. It measures the wearer's temperature immediately when applied, notifying the individual of their body temperature. It activates a cooling mechanism when squeezed, allowing the user's temperature to be reduced while waiting for help to arrive. This eliminates the worry of the body reaching extremely dangerous temperatures when the individual is suffering from heat exhaustion, fever, fainting, or seizures. The present invention functions as a cooling tool for those working outdoors and in other hot environments.

[0021] Referring now more specifically to the drawings by numerals of reference, there is shown in FIGS. **1-4**, various views of cooling device **100**. FIG. **1** shows cooling device **100** during an 'in-use' condition by user **40**, according to an embodiment of the present disclosure.

[0022] FIG. **2** shows a perspective view of cooling device **100** of FIG. **1**, according to an embodiment of the present disclosure. FIG. **2** shows cooling device **100** with substrate **110**, thermometer **120**, cooler **130**, and pouch **160**.

[0023] FIG. **3**A shows a front view of cooling device **100** of FIG. **1**, according to an embodiment of the present disclosure. As above, FIG. **3**A illustrates cooling device **100**, which can include substrate **110**, thermometer **120**, and pouch **160**. FIG. **3**B is a side view of cooling device **100** and depicts substrate **110**, thermometer **120**, cooler **130**, connector **140**, insulator **150**, and pouch **160**. Finally, FIG. **3**C shows a back view of cooling device **100** and depicts substrate **110**, connector **140**, and pouch **160**.

[0024] As shown, substrate **110** and cooler **130** are disposed inside of pouch **160**. Thermometer **120** is disposed on insulator **150** that in turn is mounted to the surface of pouch **160**. In some versions, connector **140** is disposed on the surface of pouch **160**, as well. Substrate **110** serves to transfer heat from cooler **130** to pouch **160**. In some versions, substrate **110** is water and in other versions, substrate **110** comprises a gelling agent. Connector **140** connects cooling device **100** to a portion of a patient's body to hold the cooling device against the patient's skin. Those of ordinary skill in the art will recognize diverse types of connector **140** to be useful in this invention. In some versions, connector **140** is a belt, a strap, an adhesive strip, or an arrangement of hook-and-loop fastener. Cooler **130** comprises a material that causes cooler **130** to cool when activated. For instance, in some versions, cooler **130** comprises water and an endothermic salt separated with an easily breakable barrier. When the barrier is broken, the water and salt combine and the combination absorbs energy from its surroundings, in this case substrate **110**. Alternatively, substrate **110** comprises water and cooler **130** comprises an endothermic salt that is activated when cooler **130** is broken inside of substrate **110** distributing the endothermic salt to water similarly to the previous version. Using endothermic salts to provide cold therapy is well known to those of ordinary skill in the art. In some versions, the endothermic salt is selected from ammonium nitrate, urea, or ammonium chloride.

[0025] In some versions, substrate **110** is pre-cooled by placing it in a refrigerator or freezer. Sometimes this pre-cooling of cooling device **100** allows a version of cooling device **100** to dispense with cooler **130**. Those of ordinary skill in the art will recognize that other ways of cooling substrate **110** exist. In various versions, these ways are useful in cooling device **100**.

[0026] As shown in FIG. **3**B, insulator **150** sits between pouch **160** and thermometer **120** so that thermometer **120** accurately reads the temperature of the patient's skin instead of the temperature of pouch **160** and substrate **110**. Thermometer **120** can take many different forms as is known to those of ordinary skill in the art, which forms are useful in various versions of cooling device **100**. For instance, thermometer **120** can be based on an electrical sensor or a color-changing plastic material or film.

[0027] In use, when a patient is outside or in a hot or heated environment, the thermometer indicates skin temperature when contacted with the skin. If the patient's skin temperature is too high, the patient or a caregiver activates the cooling device, in some versions by freeing the endothermic salt to dissolve in the water-based substrate. The cold cooling device **100** is placed against an appropriate region of the patient. In some versions, this region is the neck, armpits, or groin area. By doing this, cooling of the patient's body begins before other medical assistance arrives.

[0028] FIG. **4** is flow diagram **400** illustrating a method of using a cooling device **100**, according to an embodiment of the present disclosure. As illustrated, the method of using a cooling device **100** may include the steps of: providing **401** a cooling device including a pouch; an activatable cooler disposed in the pouch; substrate disposed in the pouch; a thermometer affixed to the pouch; and a connector on an outer surface of the pouch; securing **402** the cooling device to a body region with the connector; and activating **403** the cooler.

[0029] The use of "step of" should not be interpreted as "step for", in the claims herein and is not intended to invoke the provisions of 35 U.S.C. § 112(f). It should also be noted that, under appropriate circumstances, considering such issues as design preference, user preferences, marketing preferences, cost, structural requirements, available materials, technological advances, etc., other methods for the cooling device **100** (e.g., different step orders within above-mentioned list, elimination or addition of certain steps, including or excluding certain maintenance steps, etc.), are taught herein.

[0030] The embodiments of the invention described herein are exemplary and numerous modifications, variations and rearrangements can be readily envisioned to achieve substantially equivalent results, all of which are intended to be embraced within the spirit and scope of the invention. Further, the purpose of the foregoing abstract is to enable the U.S. Patent and Trademark Office and the public generally, and especially the scientist, engineers and practitioners in the art who are not familiar with patent or legal terms or phraseology, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application.

What is claimed is new and desired to be protected by Letters Patent is set forth in the appended claims:

1. A cooling device comprising:

a pouch;

an activatable cooler disposed in the pouch;

substrate disposed in the pouch;

a thermometer affixed to the pouch;

and

a connector on an outer surface of the pouch wherein the connector secures the pouch to a body region.

2. The cooling device of claim **1**, further comprising an insulator disposed between the thermometer and the pouch.

3. The cooling device of claim **2**, wherein the insulator is an insulating strip.

4. The cooling device of claim **2**, wherein the thermometer is electronic.

5. The cooling device of claim **4**, wherein the thermometer comprises a plastic strip including color-changing material.

6. The cooling device of claim **5**, wherein the connector comprises a belt and alternatively a strap.

7. The cooling device of claim **5**, wherein the connector comprises adhesive disposed on the outer surface of the pouch.

8. The cooling device of claim **7**, wherein the cooler comprises endothermic salt.

9. The cooling device of claim **8**, wherein the pouch is a plastic bag and the endothermic salt is disposed in a sealed, frangible container.

10. The cooling device of claim **8**, wherein the substrate includes a gel and alternatively water and a gelling agent.

11. A cooling device comprising:

a plastic bag;

an activatable cooling part including an endothermic salt in a sealed, frangible container disposed in the plastic bag;

substrate disposed in the pouch and including a gel;

a thermometer affixed to the pouch and comprising a plastic strip including color-changing;

an insulating strip disposed between the thermometer and the plastic bag;

and

adhesive material on an outer surface of the plastic bag wherein the adhesive material secures the plastic bag to a body region.

wherein the body region includes the neck, armpit, and groin regions.

12. A method of using a cooling device, the method comprising the steps of:

providing a cooling device including:

a pouch;

an activatable cooler disposed in the pouch;

substrate disposed in the pouch;

a thermometer affixed to the pouch;

and

a connector on an outer surface of the pouch wherein the connector is configured to secure the pouch to a body region;

securing the cooling device to a body region;

and

activating the cooler.

* * * * *

专利名称(译)	酷带		
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[标]发明人	COTHRAN CHARLA		
发明人	COTHRAN, CHARLA		
IPC分类号	A42B1/00 A61B5/01 A61B5/00 A61F7/10		
CPC分类号	A42B1/008 A61B5/01 A61B5/6814 A61B5/6831 A61F7/10 A61F2007/0007 A41D13/0058 A61F7/106 A61F2007/0011 A61F2007/0031 A61F2007/0048 A61F2007/0095 A61F2007/0096 A61F2007/0219 A61F2007/0226 A61F2007/0228 A61F2007/0276		
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外部链接	Espacenet USPTO		

摘要(译)

本文公开了一种冷却装置。所公开的冷却装置包括指示体温并包含可激活冷却器的传感器或温度计。在一些版本中，本公开讨论了包含水和吸热盐的可活化冷却器。该装置旨在促进用户佩戴者的安全性和舒适性。