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(54) **TEMPERATURE CONDITIONER**

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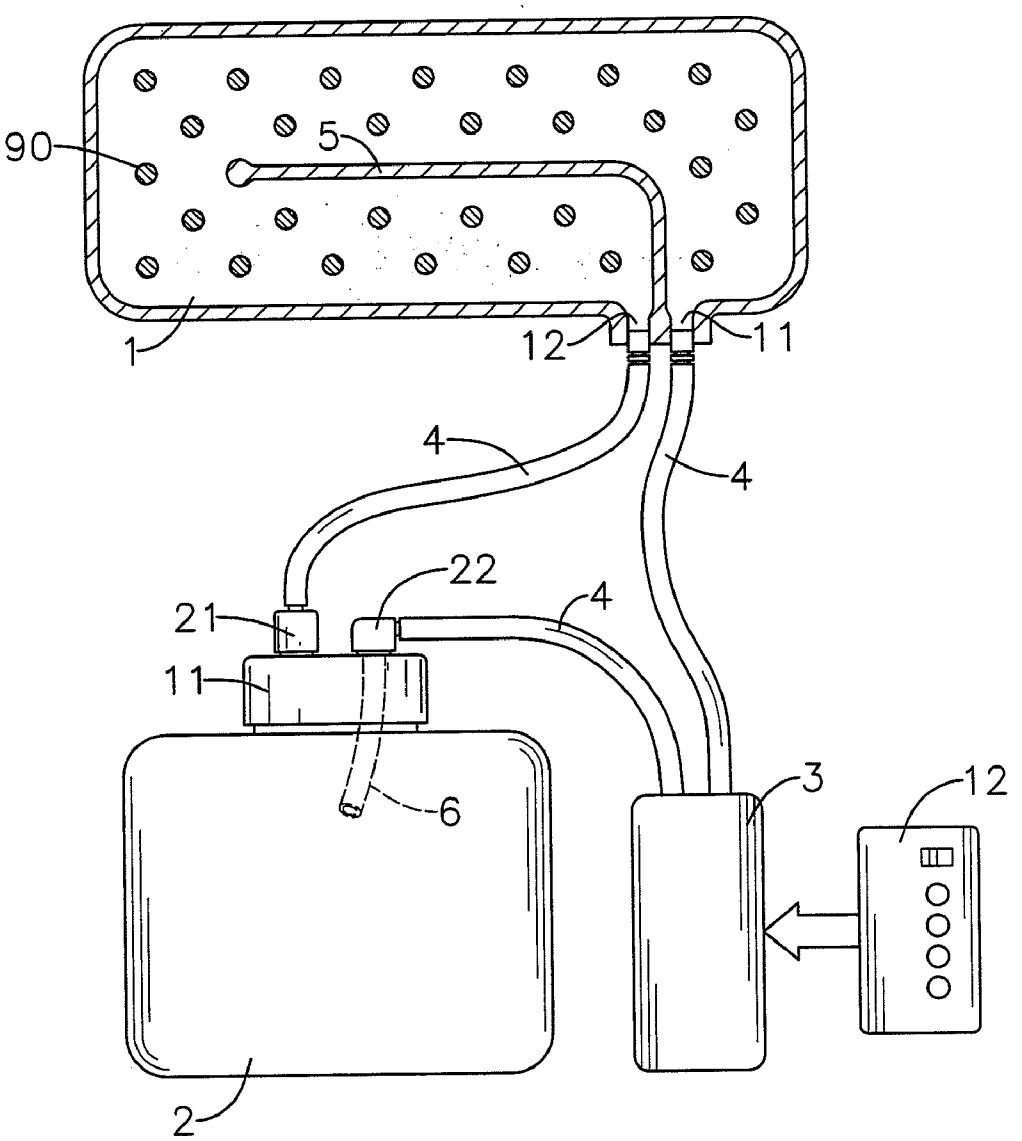
(57) **ABSTRACT**

A temperature conditioner has a heat exchanger having a fluid bag. The fluid bag has at least two bag walls, an inner space and at least one partitioner. The inner space is defined within the at least two bag walls. The at least one partitioner is formed between two of the at least two bag walls and partitioning the inner space for guiding a fluid held in the inner space.



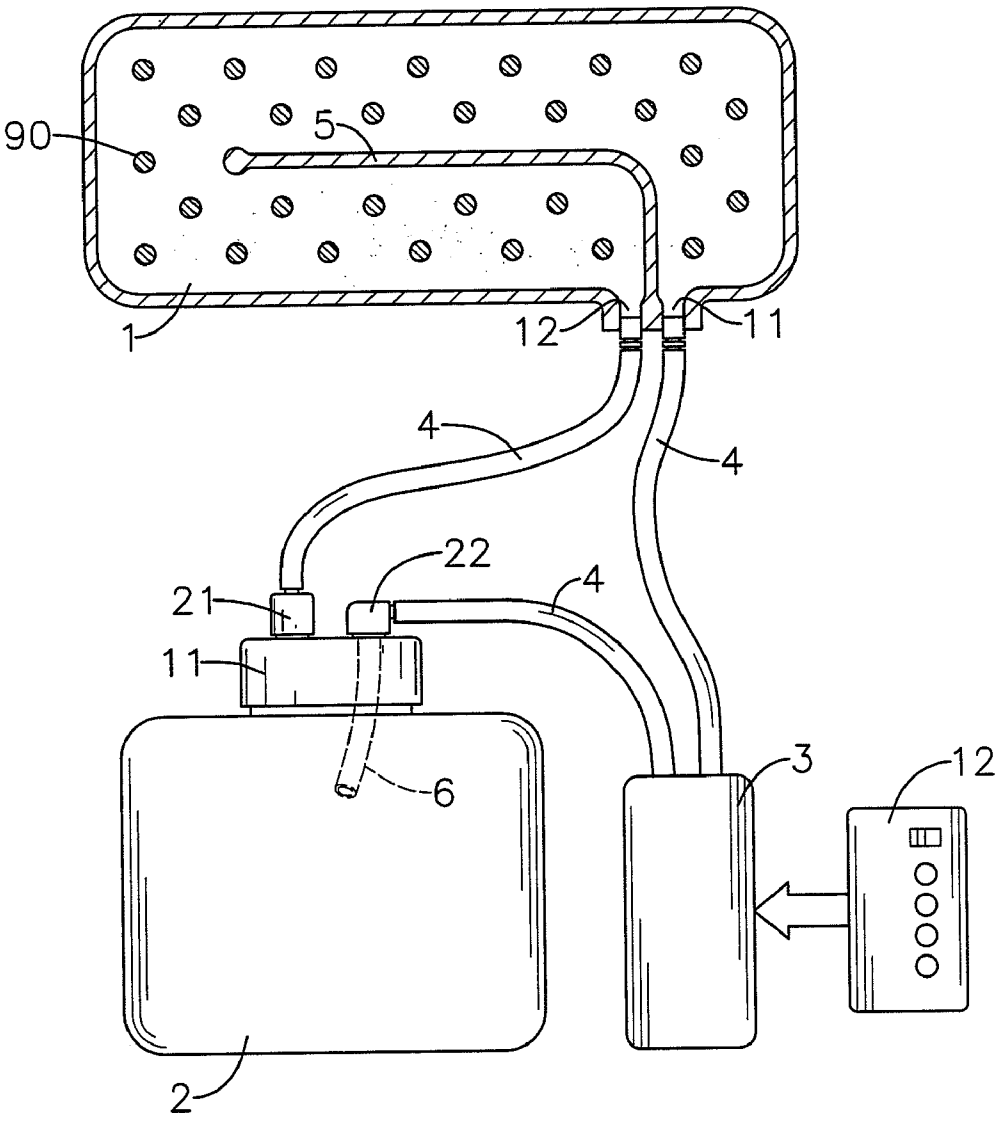


FIG. 1

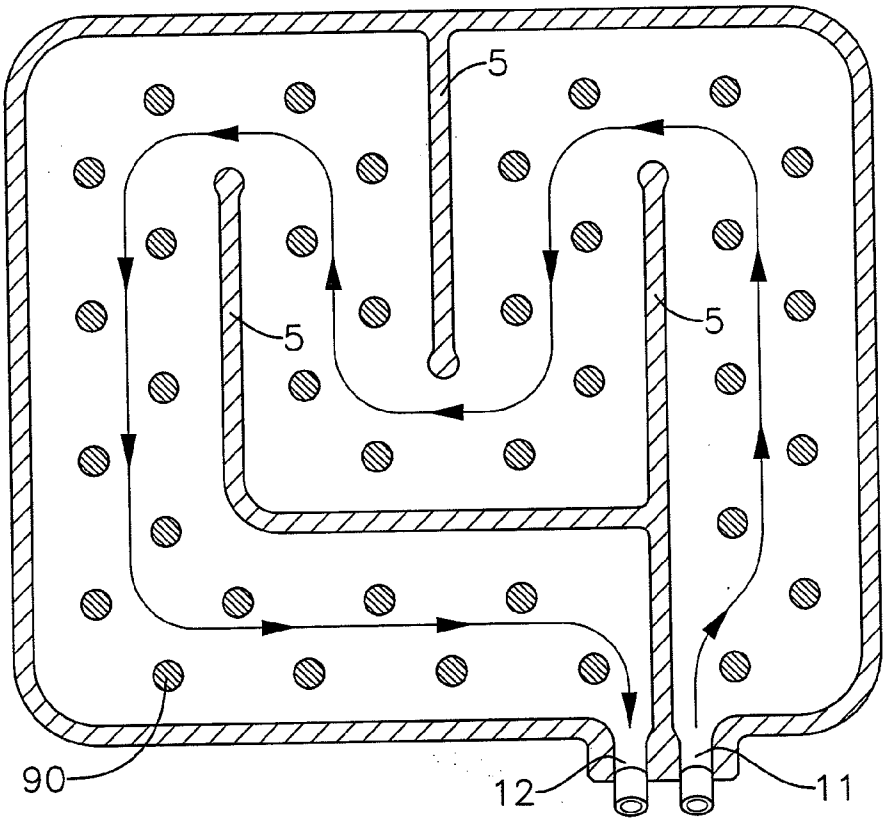


FIG. 2

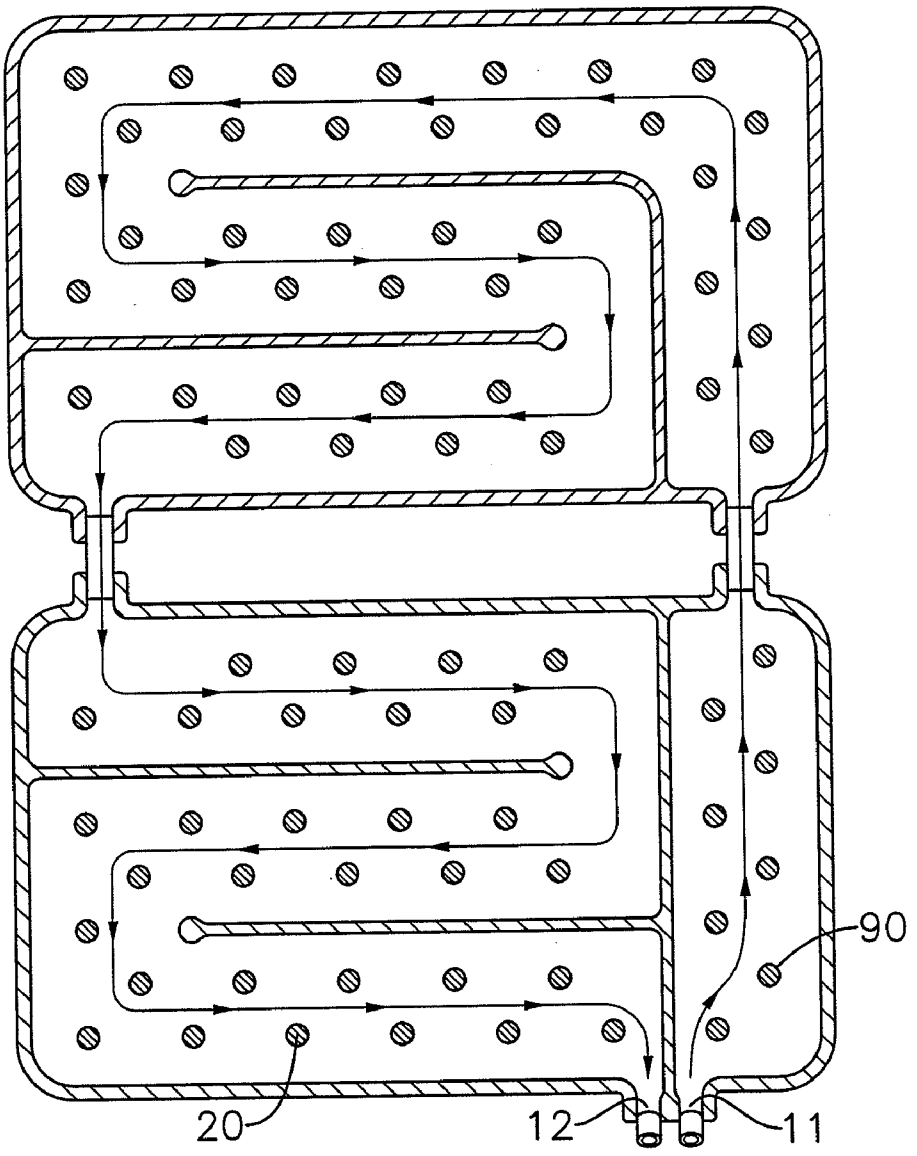


FIG. 3

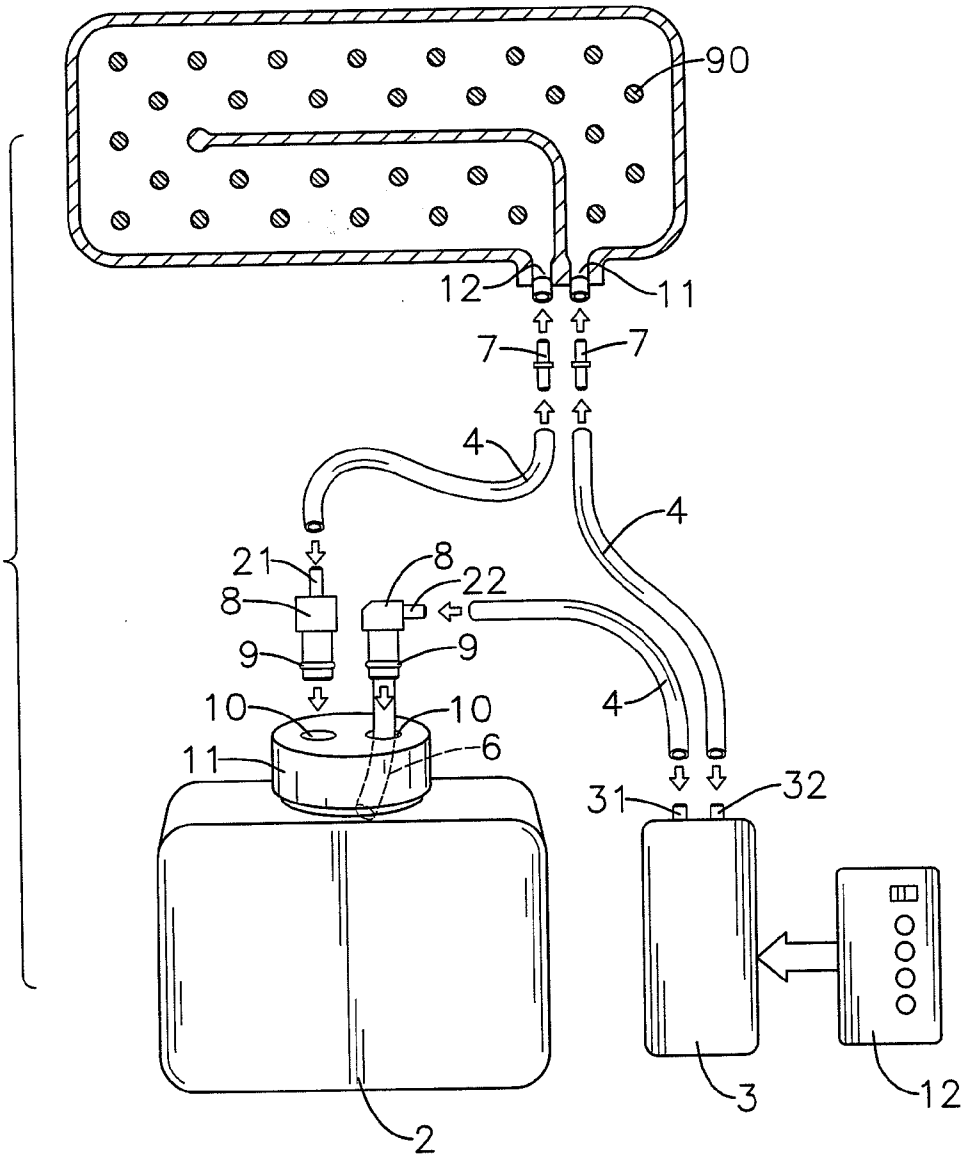


FIG. 4

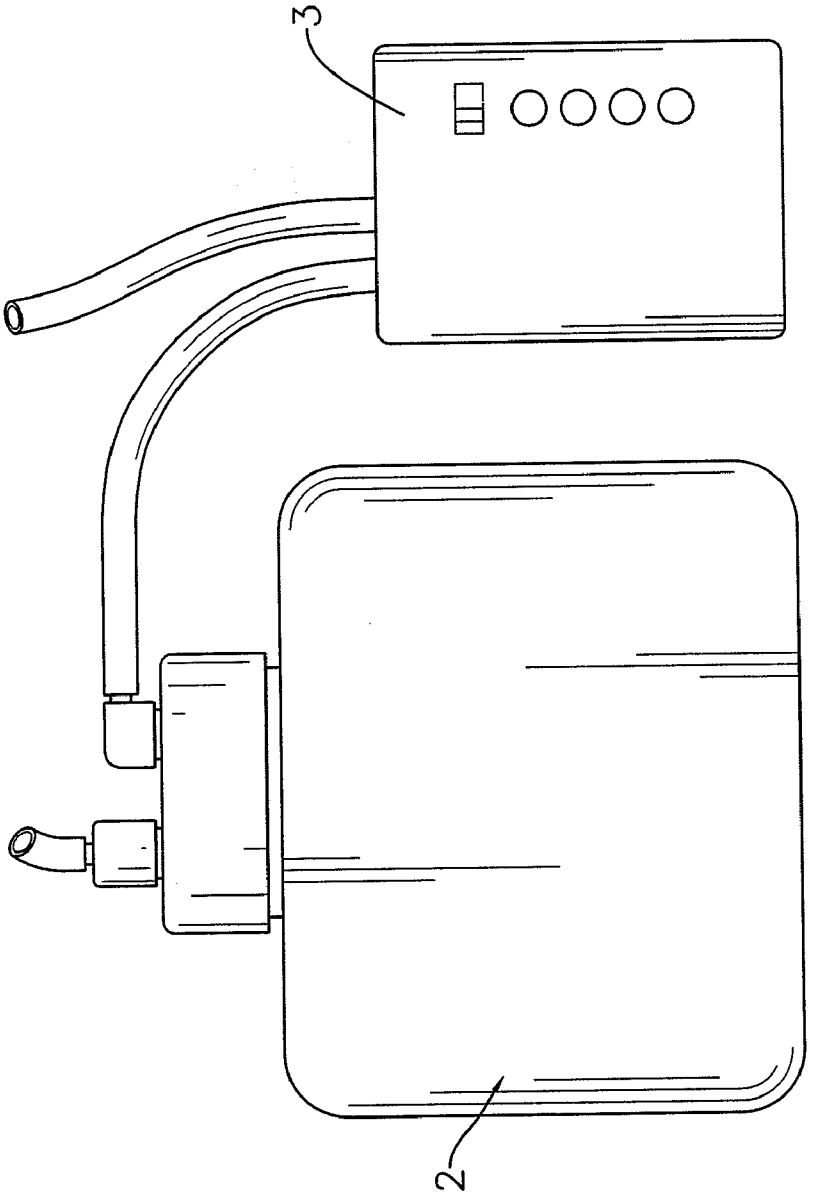


FIG. 5

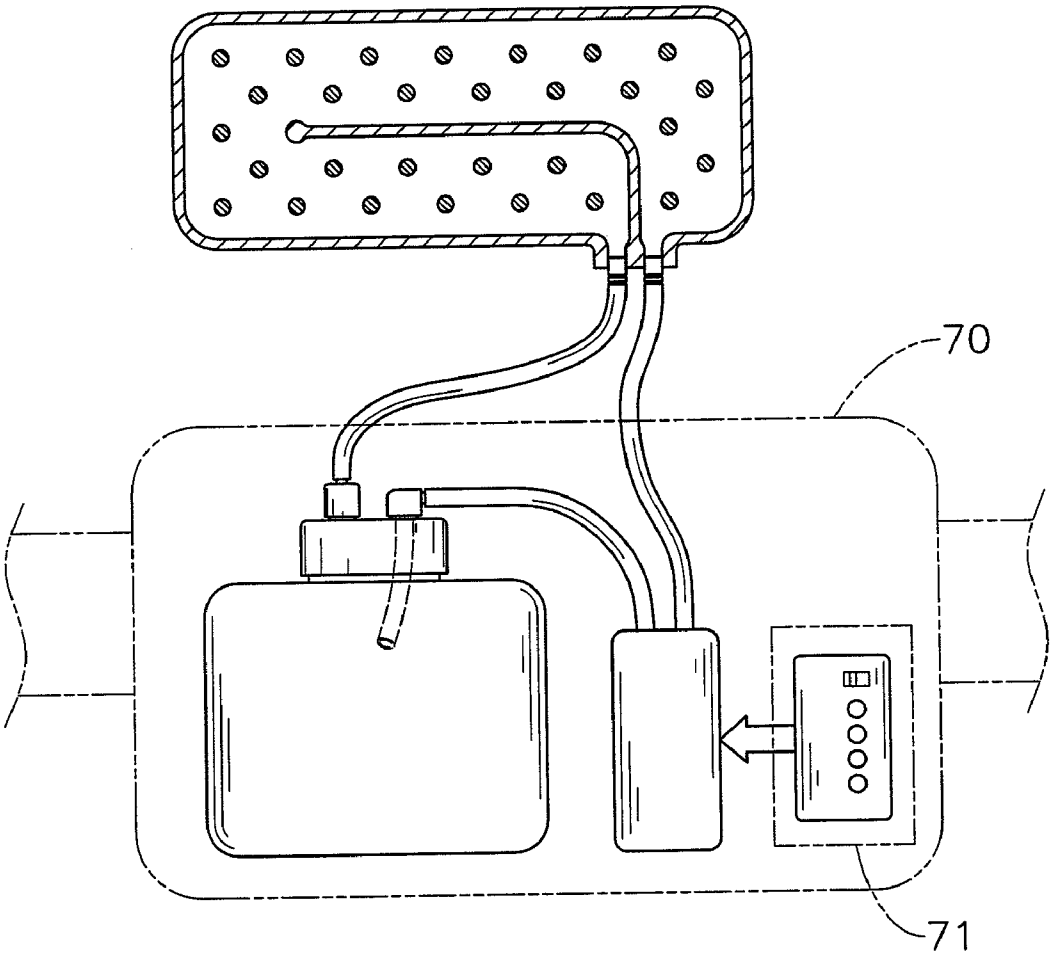


FIG.6

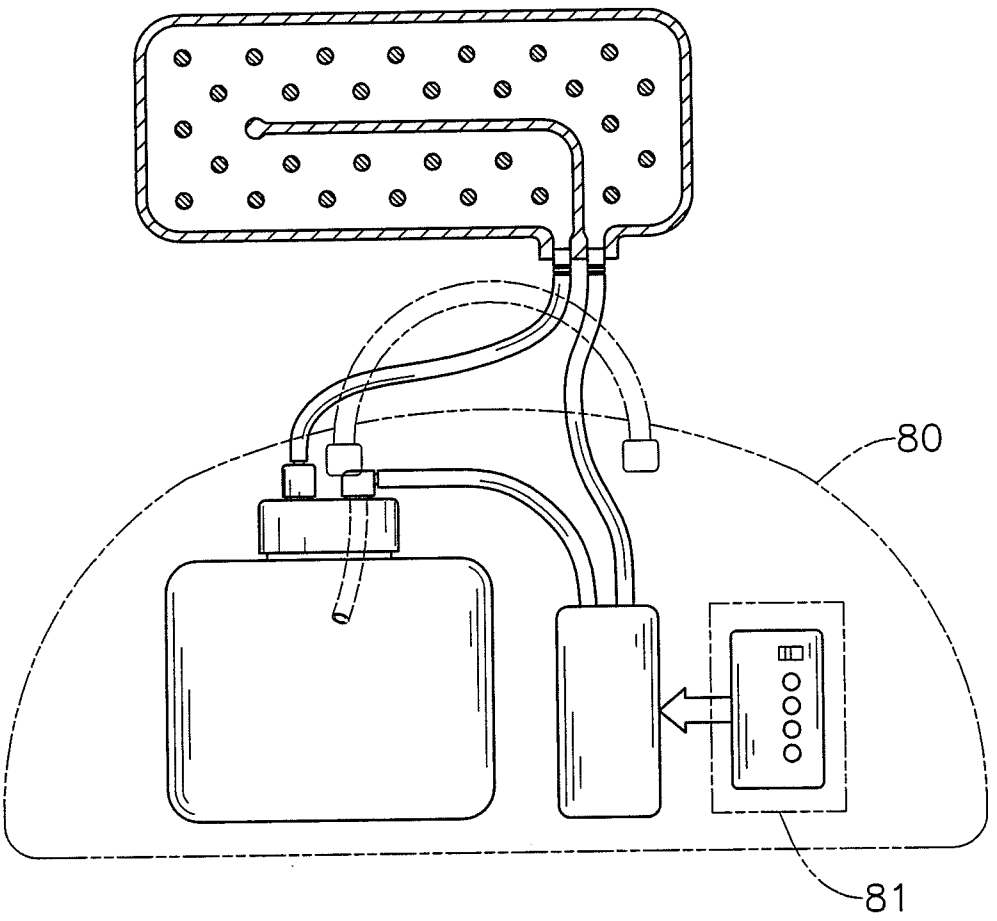


FIG. 7

TEMPERATURE CONDITIONER

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a temperature conditioner, especially to a temperature conditioner for conditioning human body temperature or animal body temperature.

[0003] 2. Description of the Prior Art

[0004] The term "conditioning" refers to raising or lowering temperature. A description such as "conditioning the body temperature of a creature" refers to raising or lowering the body temperature of a creature. The creature may be human or an animal.

[0005] A known personal cooler comprises a condenser, a pump and a vest having multiple pipes, wherein the condenser, the pump and the pipes of the vest communicate with one another. Water circulates between the condenser, the pump and the pipes of the vest. The condenser cool down water temperature, the pump pumps cold water into the pipes of the vest to cool down the body temperature of a user wearing the vest. The known personal cooler is not considered feasible because even a compact condenser unbearably weighs for an individual person.

[0006] An alternative personal cooler replaces the condenser with a container filled with ice. The pump pumps water that is cooled down by ice into the pipes of the vest to cool down the body temperature of the user wearing the vest. However, the vest has considerable weight especially with water in the pipes. A vest having less pipes results into reduced cooling effect. Furthermore, the vest itself is an extra clothing material that is not favored in hot water. In addition, the vest may not be washed or the pipes will be damaged during the washing process. The alternative personal cooler is also not considered feasible due to the aforementioned reasons.

[0007] To overcome the shortcomings, the present invention provides a temperature conditioner to mitigate or obviate the aforementioned problems.

SUMMARY OF THE INVENTION

[0008] The main objective of the invention is to provide a temperature conditioner for conditioning human body temperature or animal body temperature.

[0009] The temperature conditioner in accordance with the present invention has a heat exchanger having a fluid bag. The fluid bag has at least two bag walls, an inner space and at least one partitioner. The inner space is defined within the at least two bag walls. The at least one partitioner is formed between two of the at least two bag walls and partitioning the inner space for guiding a fluid held in the inner space.

[0010] Other objectives, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. **1** is a diagram of a temperature conditioner in accordance with the present invention;

[0012] FIG. **2** is an enlarged diagram of a fluid bag of a heat exchanger of the temperature conditioner in FIG. **1**;

[0013] FIG. **3** is an enlarged diagram of another embodiment of the fluid bag in FIG. **2**;

[0014] FIG. **4** is another diagram of the temperature conditioner in FIG. **1** showing that the temperature conditioner is exploded; and

[0015] FIG. **5** is an enlarged diagram of a pump of the temperature conditioner in FIG. **1**;

[0016] FIG. **6** is a purse holding the temperature conditioner in FIG. **1**;

[0017] FIG. **7** is a handbag holding the temperature conditioner in FIG. **1**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0018] With reference to FIG. **1**, a temperature conditioner in accordance with the present invention is used to conditioning the body temperature of human or animal and comprises a heat exchanger. The heat exchanger (**1**) comprises a flexible fluid bag. The fluid bag is used to hold a fluid and comprises a bag inlet (**11**), a bag outlet (**12**), at least two bag walls, an inner space and at least one partitioner (**5**). The inner space is defined within by the at least two bag walls. The at least one partitioner (**5**) is formed between two of the at least two bag walls and partitions the inner space of the fluid bag to construct a flow path. The fluid held by the fluid bag is guided through and limited to the flow path. The fluid bag further comprises multiple connectors (**90**). In order to prevent the fluid bag from bloating when filled with a fluid, the multiple connectors (**90**) are used to partially combine two of the at least two bag walls together and may be shaped as points or blocks.

[0019] With reference to FIGS. **1** and **2**, the fluid bag of the heat exchanger (**1**) may be alternatively partitioned to construct different flow paths. With reference to FIG. **3**, the fluid bag may be divided into multiple divisions communicating with each other through fluid-permitting non-solid members.

[0020] With further reference to FIG. **1**, the temperature conditioner in accordance may further comprise a container (**2**), a pump (**3**), an electrical controller (**12**) and multiple pipes (**4**). The container (**2**) comprises a container cap (**11**). The container cap (**11**) comprises a container inlet (**21**) and a container inlet (**22**), wherein the container inlet (**21**) communicating with the aforementioned bag outlet. The pump (**3**) comprises a pump inlet (**31**) and a pump outlet (**32**). The pump inlet (**31**) communicating with the container inlet (**22**) and the pump outlet (**32**) communicating with the bag inlet (**11**). The electrical controller (**12**) is used for controlling the pump (**3**). The multiple pipes (**4**) respectively connect the container inlet (**21**) to the bag outlet, the pump inlet (**31**) to the container inlet (**22**) and the pump outlet (**32**) communicating with the bag inlet (**11**).

[0021] With further reference to FIG. **4**, the container inlet (**21**) and the container inlet (**22**) of the container cap (**11**) are tubular. The bag inlet (**11**) and the bag outlet (**12**) of the fluid bag are tubular. Furthermore, the temperature conditioner further comprises two container pipe-joints (**8**) and two bag pipe-joints (**7**). The two container pipe-joints (**8**) are respectively mounted in the container inlet (**21**) and the container inlet (**22**). Each container pipe-joint (**8**) comprises an outer surface and an O-ring (**9**) attached to the outer surface. The two bag pipe-joints (**7**) are respectively mounted in the bag inlet (**11**) and the bag outlet.

[0022] With reference to FIGS. **1** and **4**, the container inlet (**22**) may comprise a duct (**6**) mounted in the container inlet (**22**) and extending inwards into the container.

[0023] With reference to FIG. **5**, the electrical controller (**12**) may be directly attached to the pump (**3**) so that substantially integrated therewith for convenient carrying and operating. A preferred embodiment of the electrical controller (**12**) comprises at least one indicator and at least one button.

[0024] With reference to FIGS. **6** and **7**, the temperature conditioner in accordance with the present invention may further comprise a handbag (**80**) or purse (**70**) for holding the container (**2**), the pump (**3**) and the electrical controller (**12**). The handbag (**80**) or purse (**70**) comprises a transparent window (**71**, **81**) allowing at least one indicator and at least one button of the electrical controller to be accessible.

[0025] When using the temperature conditioner, a heat-exchange fluid is filled into the container (**2**) so that the duct is below the water surface of the fluid. The pump (**3**) is activated to pump the fluid from the container (**2**) into the heat exchanger (**1**) through the duct (**6**). The fluid flows through the flow path constructed by the at least one partitioner (**5**) while exchanging heat with a body of a human or an animal and then flow back to the container (**2**). Enough amount of the fluid has to be used to ensure the duct (**6**) is always below the water surface of the fluid.

[0026] Even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and features of the invention, the disclosure is illustrative only. Changes may be made in the details, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the fall extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:

1. A temperature conditioner comprising
- a heat exchanger comprising
  - a fluid bag being flexible and comprising
    - a bag inlet;
    - a bag outlet;
    - at least two bag walls;
    - an inner space defined within the at least two bag walls;
    - at least one partitioner formed between two of the at least two bag walls and partitioning the inner space for guiding a fluid held in the inner space.

2. The temperature conditioner as claimed in claim **1**, wherein
- the fluid bag comprises
  - multiple connectors partially combining two of the at least two bag walls together.

3. The temperature conditioner as claimed in claim **1**, wherein
- the fluid bag is divided into multiple divisions communicating with each other through fluid-permitting non-solid members.

4. The temperature conditioner as claimed in claim **1** further comprising
- a container comprising
  - a container cap comprising
    - a container inlet communicating with the bag outlet;
    - a container inlet;
- a pump comprising
  - a pump inlet;
  - a pump outlet;
- an electrical controller;
- multiple pipes.

5. The temperature conditioner as claimed in claim **4**, wherein
- the container inlet is tubular;
- the container inlet is tubular;
- the bag inlet is tubular;
- the bag outlet is tubular; and
- the temperature conditioner further comprises
  - two container pipe-joints and each comprising
    - an outer surface;
    - an O-ring attached to the outer surface;
  - two bag pipe-joints and the bag outlet.

6. The temperature conditioner as claimed in claim **4**, wherein
- the container inlet comprises
  - a duct and extending inwards into the container.

7. The temperature conditioner as claimed in claim **4** further comprising a purse.

8. The temperature conditioner as claimed in claim **4** further comprising a handbag.

9. The temperature conditioner as claimed in claim **7**, wherein
- the electrical controller comprises
  - at least one indicator;
  - at least one button; and
- the purse comprises
  - a transparent window allowing at least one indicator and at least one button of the electrical controller to be accessible.

10. The temperature conditioner as claimed in claim **8**, wherein
- the electrical controller comprises
  - at least one indicator;
  - at least one button; and
- the handbag comprises
  - a transparent window allowing at least one indicator and at least one button of the electrical controller to be accessible.

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