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(54) **COOLING VEST**

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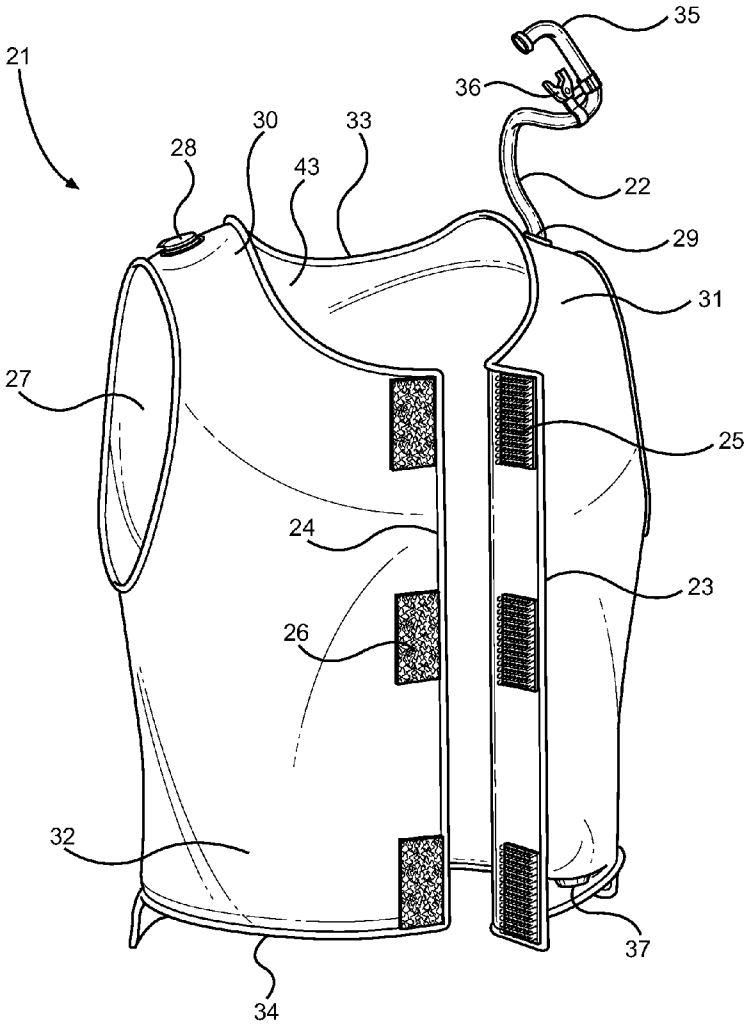
(57) **ABSTRACT**

Disclosed is a cooling garment for dispensing liquid in a mist. In one embodiment, the garment includes a vest having two juxtaposed layers that are affixed about the edges thereof, defining an interior volume for holding liquid therein. The interior volume may be accessed via a refill port for pouring liquid therethrough. The liquid can be dispensed from the interior volume of the vest via a spray head that is disposed at the shoulder portion of the vest. The spray head is connected to a tube, which is in fluid communication with the interior volume of the vest. The spray head may be actuated via a hand pump, which includes a pump handle that is accessible from the exterior of the vest at the front panel thereof. Additionally, the spray head may be removably attached to a wearer's shirt or hat via a clip attached thereto.



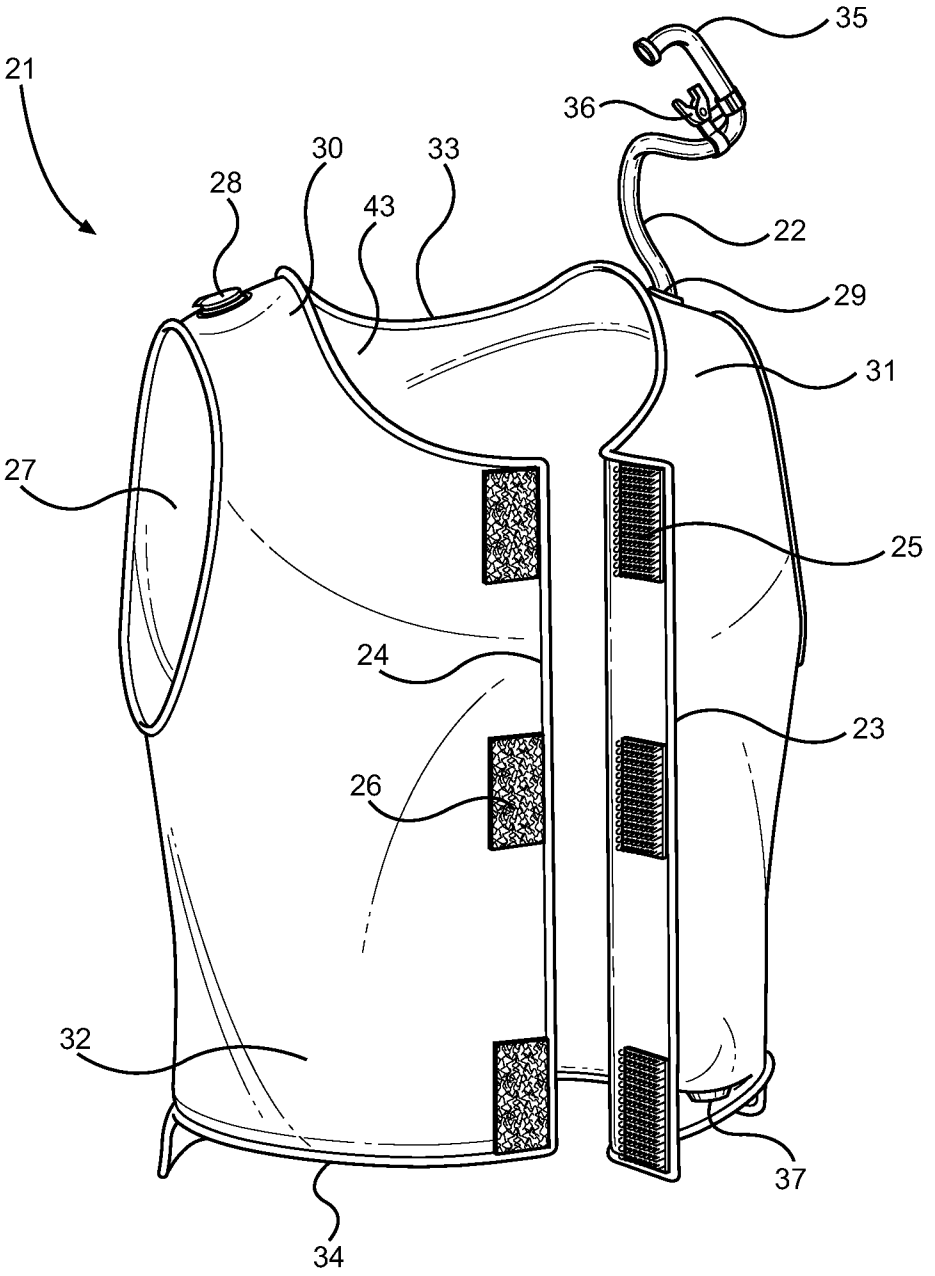


FIG. 1

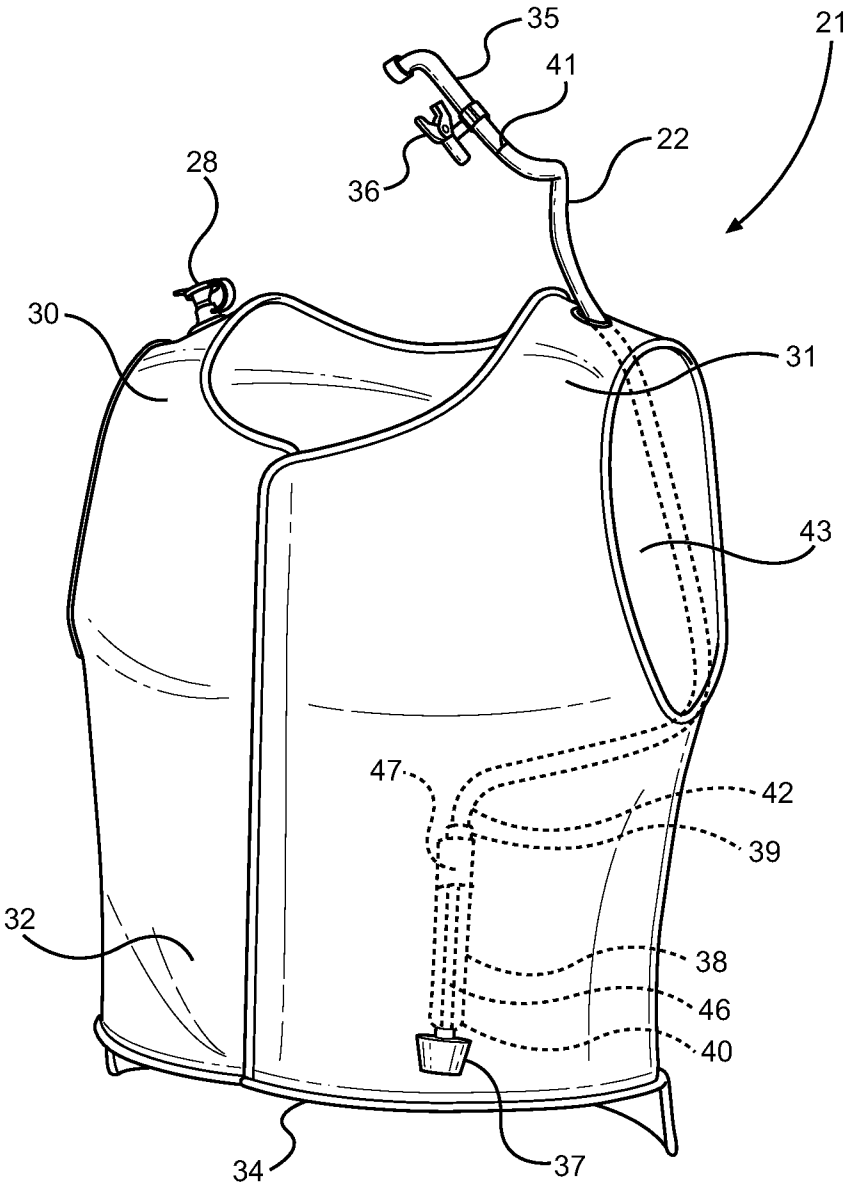


FIG. 2

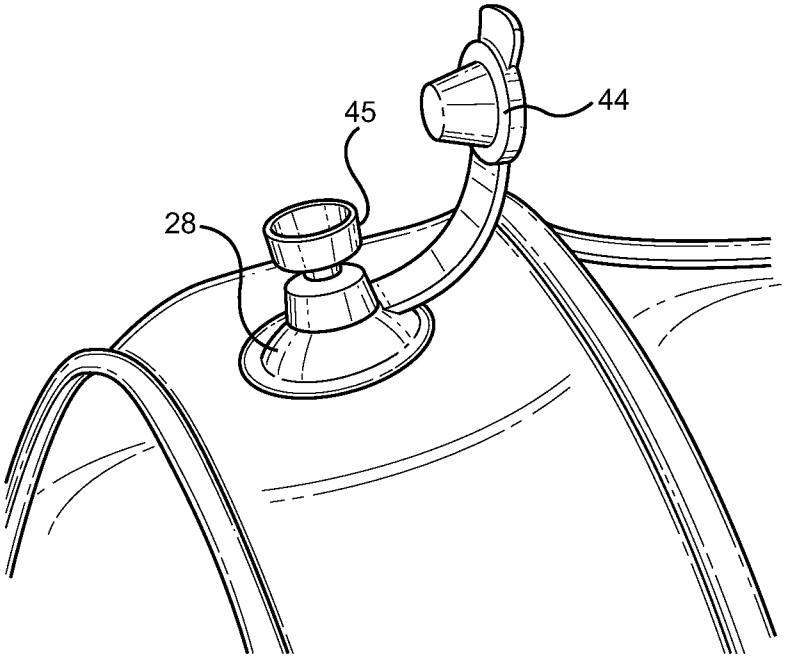


FIG. 3

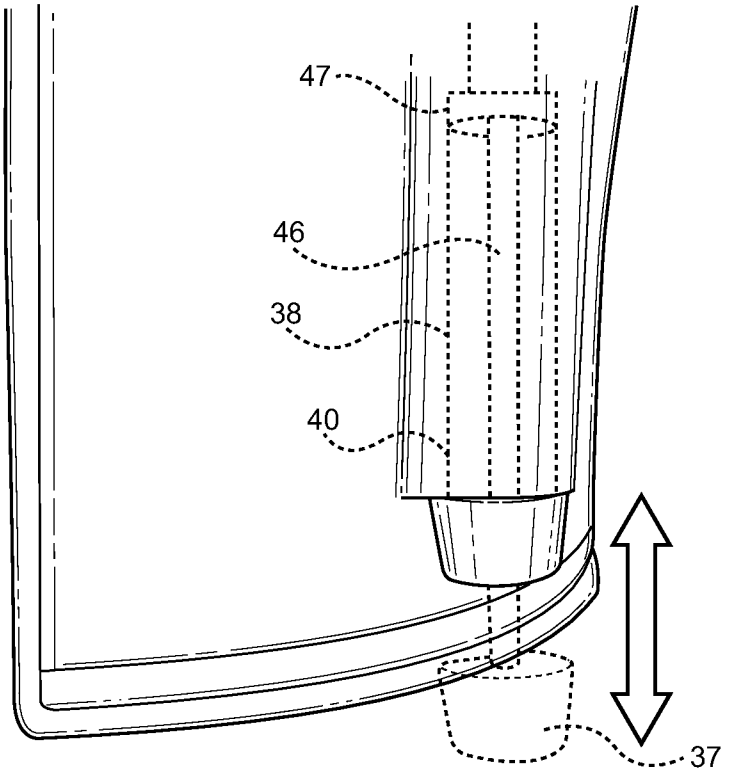


FIG. 4

COOLING VEST

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Application No. 61/886,184 filed on Oct. 3, 2013. The above identified patent application is herein incorporated by reference in its entirety to provide continuity of disclosure.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The present invention relates to a cooling garment. More specifically, the present invention pertains to an improved cooling vest with an interior volume for holding liquid therein. In one embodiment, the liquid is dispensed from a spray head via a manually operated pump.

[0003] Exposure to abnormal or prolonged amounts of heat and humidity without relief or adequate fluid intake can cause various types of heat-related illness. Children, adolescents, and the elderly are particularly susceptible to heat-related illness because they produce more heat while sweating less. Additionally, children, adolescents, and the elderly may not drink enough fluids when participating in physical activities outdoors. Heat-related illnesses includes minor conditions such as heat cramps, heat syncope, and heat exhaustion, as well as more severe condition such as heat stroke.

[0004] Heat related illnesses are preventable with adequate hydration and frequent resting in cool environments. Some individuals carry a water bottle to drink from the water bottle or mist cool water on their faces to reduce their temperature, while other individuals seek shade or a resting area. However, it can be inconvenient to carry additional items such as a water bottle, and it can be impractical to find or set up a resting area. Thus, a portable device that can properly hydrate the user while regulating the user's body heat is desired.

[0005] The present invention provides a cooling vest. The vest comprises an outer layer and an inner layer that are attached together about the peripheral edges thereof, defining an interior volume therebetween. The outer layer and the inner layer are composed of plastic or other suitable material that can prevent liquid from permeating therethrough. The interior volume of the vest is in fluid communication with a tube. The tube comprises a first end that that extends out of the vest and connects to a spray head, and a second end that is imbedded in the interior volume so that it can draw liquid from the interior volume of the vest. In one embodiment, the spray head is adapted to dispense liquid in a mist via a pump. The pump may be manually operated via a handle that is accessible from the bottom of the vest. The spray head may comprise a clip or a similar fastening means thereon so that it can be removably attached to the wearer's shirt or hat.

[0006] The interior volume of the vest may be refilled with water or other types of liquid via a refill port. The refill port comprises an opening that provides access to the interior volume, and may be secured closed via a lid. It is contemplated that the vest comprises a unitary construction with a defined back panel, a front panel with an opening, arm openings, and a neck opening. Additionally, the front panel can adjustably close via fasteners such as hook and loop fasteners.

DRESCRIPTION OF THE PRIOR ART

[0007] Devices have been disclosed in the prior art that relate to cooling garments. These include devices that have been patented and published in patent application publications. Some of these devices disclose a garment that can mist cold fluids towards the wearer of the garment. Other devices disclose a vest with built in ice packs. These devices, however, do not disclose a vest with an interior volume for holding liquid, and a tube that is connected to a spray head that is disposed near the shoulders or neck portion of the vest. The foregoing is a list of devices deemed most relevant to the present disclosure, which are herein described for the purposes of highlighting and differentiating the unique aspects of the present invention, and further highlighting the drawbacks existing in the prior art.

[0008] Specifically, U.S. Published Patent Application Number 2012/0151951 to Terry discloses a cooling vest having a hood attached thereto. The vest comprises an opening with a Velcro closure so that the vest can be easily donned. The vest comprises an outer layer, an inner layer, and rubber-tube coiled therebetween. The rubber-tube is connected to a pump, which is connected to a copper-tube that is disposed inside of a cooler. Water is circulated via pump into the vest from the cooler. One or both of the inner and outer layers of the vest may be insulated to keep the vest cool. While Terry discloses a vest that connects to a pump to circulate water therein, Terry does not disclose a vest having a spray head that can mist water.

[0009] Similarly, U.S. Pat. No. 5,524,293 to Kung discloses a vest having an outer layer and an inner layer, wherein the inner layer is adapted to receive one or more ice packs therein. In one embodiment, the ice packs are disposed about the back panel of the vest, and do not extend toward the front panels of the vest. In contrast, the present invention comprises a vest having a defined interior volume for holding liquid therein, so that the liquid is stored in back panel and front panels of the vest. Additionally, Kung does not disclose a vest having a spray head that can mist liquid to the wearer.

[0010] U.S. Pat. No. 8,449,588 to Horn discloses a vest having a plurality of heat sinks in a quilted configuration, such that the heat sinks are separated by channels. The heat sinks can remove sweat or moisture from the surface of the body and allow air to flow through the channels. Thus, Horn does not disclose a vest that can store water in the interior volume thereof. In contrast, the present invention comprises a vest having an inner layer and an outer layer that are attached about the perimeter thereof, so as to form an interior volume therebetween. The interior volume of the present invention is adapted to hold water therein, and the interior volume is in fluid communication with a tube that can draw water so that the water can be sprayed out of the vest.

[0011] U.S. Published Patent Application Number 2012/0260398 to Stapleton discloses a vest having an outer layer and an inner layer, each of the layers in communication with an air plenum. The two air plenums are in communication so as to allow air to flow through the vest, whereby the air flow can help cool the wearer. Therefore, the device of Stapleton is not adapted to hold water therein.

[0012] U.S. Pat. No. 6,189,327 to Strauss discloses a personal cooler that comprises a band that can be worn around a user's neck, head, or other portions of the body. The band comprises at least one heat dissipating member that is adapted to absorb heat from the user's body, and a liquid-retainable

material with at least one air plenum for delivering cool air to the user. Thus, Strauss does not disclose a vest adapted to store liquid therein.

[0013] Finally, U.S. Pat. No. 8,443,463 to Paull discloses a garment that is composed of a wicking fabric and includes a tube imbedded therein. The tube is in fluid communication with a reservoir that is removably attached thereto. The tube is preferably disposed along the top portion of the garment so as to dispense water or liquid to the top portion thereof. In contrast, the present invention comprises a tube that is in fluid communication with the interior volume of the vest, which stores water or liquid therein. In this way, the present invention comprises a reservoir that is integrally formed with the vest.

[0014] The devices disclosed in the prior art have several known drawbacks. These devices are limited in that none of these devices are operable to spray water or liquid that is stored in the interior volume of the vest. The present invention overcomes these limitations by disclosing a vest with an interior volume for holding water therein. The interior volume is in fluid communication with a tube that extends out of a first shoulder portion of the vest. The tube is connected to a spray head that can mist water onto the wearer. The spray head may be manually actuated via a hand-pump or automatically actuated via a timer, depending upon embodiment. Thereafter, the interior volume of the vest may be refilled with water via a refill port disposed on a second shoulder portion of the vest.

[0015] It is therefore submitted that the present invention is substantially divergent in design elements from the prior art, and consequently it is clear that there is a need in the art for an improvement to cooling garments. In this regard, the instant invention substantially fulfills these needs.

SUMMARY OF THE INVENTION

[0016] In view of the foregoing disadvantages inherent in the known types of cooling garments now present in the prior art, the present invention provides a new and improved cooling vest wherein the same can be utilized for reducing the body temperature of a wearer and for preventing heat injuries.

[0017] It is therefore an object of the invention to provide a new and improved cooling vest that has all of the advantages of the prior art and none of the disadvantages.

[0018] Another object of the present invention is to provide a new and improved cooling vest that comprises an interior volume for holding liquid therein, thereby eliminating the need to carry an external reservoir.

[0019] Yet another object of the present invention is to provide a new and improved cooling vest that comprises a chest opening that can be adjustably closed via fasteners such as hook and loop fasteners in order to secure the vest on a user.

[0020] Still yet another object of the present invention is to provide a new and improved cooling vest having a tube that is in fluid communication with the interior volume of the vest and a spray head to dispense liquid from the spray head.

[0021] Still yet another object of the present invention is to provide a new and improved cooling vest that can dispense liquid manually via a pump.

[0022] Still yet another object of the present invention is to provide a new and improved cooling vest that can dispense liquid automatically via a timer.

[0023] Still yet another object of the present invention is to provide a new and improved cooling vest wherein the device may be readily fabricated from materials that permit relative economy and are commensurate with durability.

[0024] Other objects, features, and advantages of the present invention will become apparent from the following detailed description taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTIONS OF THE DRAWINGS

[0025] Although the characteristic features of this invention will be particularly pointed out in the claims, the invention itself and manner in which it may be made and used may be better understood after a review of the following description, taken in connection with the accompanying drawings wherein the numeral annotations are provided throughout.

[0026] FIG. **1** shows a perspective view of the present invention in an open configuration.

[0027] FIG. **2** shows a transparent view of the present invention in a closed configuration.

[0028] FIG. **3** shows a close up view of the refill port of the present invention.

[0029] FIG. **4** shows a close up view of the pump of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0030] References are made herein to the attached drawings. Like reference numerals are used throughout the drawings to depict like or similar elements of the cooling vest. For the purposes of presenting a brief and clear description of the present invention, the preferred embodiment will be discussed as used to reduce body temperature of a wearer and to prevent heat injuries. The figures are intended for representative purposes only and should not be considered to be limiting in any respect.

[0031] Referring now to FIG. **1**, there is shown a perspective view of the present invention in an open configuration. The present invention comprises a vest **21** having an outer layer and an inner layer that are directly aligned and affixed together about the peripheral edges thereof, defining an interior volume therebetween. Further, the vest **21** comprises a unitary construction with arm openings **27**, a neck opening at a top end **33** thereof, and a torso opening at a bottom end **34** thereof. The vest is composed of a material that is cool to the touch and impermeable to water, such as thin plastic, or other suitable materials.

[0032] The vest **21** also comprises a back panel **43** and front panel **32**, wherein the front panel **32** is vertically split along the substantial midpoint thereof, defining a torso opening that can adjustably close via hook fasteners **25** and loop fasteners **26**. In the illustrated embodiment, the hook fasteners **25** are disposed along a first side **23** of the torso opening, and the loop fasteners **26** are disposed along a second side **24** of the torso opening. The hook fasteners **25** and the loop fasteners **26** are separated at regular intervals, and are adapted to directly align when the first side **23** of the torso opening overlaps the second side **24** of the torso opening. The first side **23** can be brought closer to the second side **24** for a loose fit or the first side **23** can be brought further apart from the second side **24** for a tighter fit.

[0033] The top end **33** of the vest **21** further comprise a first shoulder portion **30** and a second shoulder portion **31**. The first shoulder portion **30** comprises a refill port **28** that is in fluid communication with the interior volume of the vest **21**. The second shoulder portion **31** comprises an opening **29** for

receiving a portion of a tube **22** therethrough. The tube **22** comprises an open first end and an open second end, wherein the first end of the tube **22** extends out of the interior volume of the vest **21** and the second end of the tube **22** extends into the interior volume of the vest **21** and remains in fluid communication therewith.

[0034] The first end of the tube **22** is connected to a spray head **35** that is adapted to dispense water or other liquid from the interior volume of the vest **21**. The spray head **35** may be removably secured to a wearer's hat or shirt via a spring biased clip **36** or other similar fasteners disposed thereon. In some embodiments, the spray head **35** may rotate with respect to the tube **22** so that it can dispense water from various angles. In one embodiment, the spray head **35** may manually dispense water when a dispensing mechanism, such as a hand-operated pump is actuated. In the illustrated embodiment, the pump includes a pump handle **37** that is accessible from the bottom end **34** of the vest **21**. The pump is adapted to drive water from the interior volume of the vest **21** into the tube **22**, pushing up against all of the air inside. As more water is added to the tube **22**, air is further compressed and pressure is increased. The pressure may be released when the water is dispensed through the spray head. In the illustrated embodiment, the water may be dispensed when the pump handle **37** is actuated. Alternatively, the water may be dispensed via a trigger or a similar mechanism disposed on the spray head, depending upon embodiment.

[0035] Referring now to FIG. **2**, there is shown a transparent view of the present invention in a closed configuration. The first shoulder portion **30** of the vest **21** comprises a refill port **28** that can open and close. The second shoulder portion **31** comprises an opening having a portion of the tube **22** secured therein. Preferably, the opening is sealed around the edges thereof so as to prevent water from leaking therefrom. The first end **41** of the tube **22** extends out of the opening at the second shoulder portion **31**, and is connected to a lower end of the spray head **35**. The upper end of the spray head **35** comprises a plurality of apertures thereon so as to dispense water or liquid in a mist.

[0036] The remaining portion of the tube **22** is imbedded in the interior volume of the vest **21**. The tube **22** is flexible so that it can extend from the second shoulder portion **31**, the back panel **43**, and towards the front panel **32**. The second end **42** of the tube **22** may be connected to the first end **39** of the pump **38** that is located on the front panel **32**. The second end **40** of the pump **38** includes a pump handle **37** and a piston **46** attached thereto. The piston **46** can extend out of and retract back into the pump **38**. Water or liquid stored in the interior volume of the vest **21** is drawn into the tube **22** when the pump handle **37** and the piston **46** are extended. Conversely, water or liquid is dispensed out of the spray head **35** when the pump handle **37** and the piston **46** are retracted toward the first end **47** of the pump **38**. The pump handle **37** is accessible through an opening disposed on the front panel **32** of the vest **21**, while the remaining portion of the pump **38** is imbedded in the vest **21**. Alternatively, the present invention may comprise a bulb style pump that can be operated to pressurize the water or liquid stored in the interior volume of the vest **21**. The pressure then forces the water or the liquid into the tube and then out of the spray head **35**.

[0037] Referring now to FIG. **3**, there is shown a close up view of the refill port **28** of the present invention. The refill port **28** comprises an opening **45** that is in fluid communication with the interior volume of the vest. In this way, water or other types of liquid can be poured through the opening **45** on the refill port **28** to fill the interior volume of the vest with water or liquid. Conversely, water or other types of liquid can be drained out of the opening **45** when the vest is not in use. The opening **45** can be removably closed via a lid **44** attached thereto. The lid **44** comprises a protrusion that can be inserted through the opening **45** so as to plug the same, creating a water tight seal. The lid **44** may comprise a tab along the edge thereof so that the tab can be pulled to remove the lid **44** from the opening **45**.

[0038] Referring now to FIG. **4**, there is shown a close up view of the pump of the present invention. The pump is located on the front panel of the vest. The first end **47** of the pump is in fluid communication with tube. The second end **40** of the pump **38** includes a pump handle **37** having a piston **46** attached thereto. The pump handle **37** is accessible from the exterior of the vest at the bottom end thereof, and the piston **46** is adapted to be retracted into the pump **38** and extend back out of the pump **38** via the pump handle **37**.

[0039] In one embodiment, the liquid stored in the interior volume of the vest is drawn into the tube when the pump handle **37** is extended downward, and therefore the piston **46** is extended out of the vest. Thereafter, the liquid is forced towards the first end of the tube from the second end of the tube, then dispensed out of the spray head when the pump handle **37** is retracted, and the piston **46** is pushed into the vest. Alternatively, the liquid may be drawn into the tube when the pump handle **37** is repeatedly extended and retracted, building a pressure within the tube as the tube becomes filled with liquid. The liquid may then be dispensed from the spray head via a trigger or a similar mechanism that can release the pressure in the tube as the liquid escapes the tube.

[0040] In an alternate embodiment, the present invention may comprise a timer that can automatically dispense liquid from the interior volume of the vest at regular intervals. It is contemplated that the timer may be in communication with a mechanism that can dispense liquid from the spray head. Additionally, the timer may be powered via batteries, and the timer and the batteries may be stored in a water proof compartment that is disposed on the exterior of the vest.

[0041] It is therefore submitted that the instant invention has been shown and described in what is considered to be the most practical and preferred embodiments. It is recognized, however, that departures may be made within the scope of the invention and that obvious modifications will occur to a person skilled in the art. With respect to the above descriptions then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function, and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specifications are intended to be encompassed by the present invention.

[0042] Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

I claim:

1) A cooling vest, comprising:

a vest having an outer layer and an inner layer that are attached together about the edges thereof to form an interior volume therebetween;

an elongated tube having a first end and a second end;

said first end of said elongated tube extending out of said vest;

said second end of said elongated tube positioned within said interior volume of said vest;

a spray head attached to said first end of said elongated tube;

said elongated tube in fluid communication with said interior volume of said vest;

a dispensing mechanism connected to said second end of said elongated tube;

said spray head adapted to dispense liquid stored in said interior volume when said dispensing mechanism is actuated.

2) The cooling vest of claim **1**, further comprising a clip attached to said spray head.

3) The cooling vest of claim **1**, wherein said vest further comprises a front panel with a torso opening that can adjustably close via hook and loop fasteners.

4) The cooling vest of claim **1**, wherein said dispensing mechanism is accessible from an exterior of said vest.

5) The cooling vest of claim **1**, wherein said outer layer and said inner layer are impermeable to water.

6) The cooling vest of claim **1**, wherein said spray head is adapted to dispense liquid in a mist.

7) The cooling vest of claim **1**, wherein said vest comprises a shoulder portion having a refill port with an opening;

said opening providing access to said interior volume of said vest.

8) The cooling vest of claim **1**, wherein said first end of said tube extends from a shoulder portion of said vest.

9) The cooling vest of claim **1**, wherein said dispensing mechanism comprises a hand-operated pump.

10) The cooling vest of claim **9**, wherein said hand-operated pump comprises a piston.

* * * * *