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BODY COOLING AND PROTECTING APPAREL

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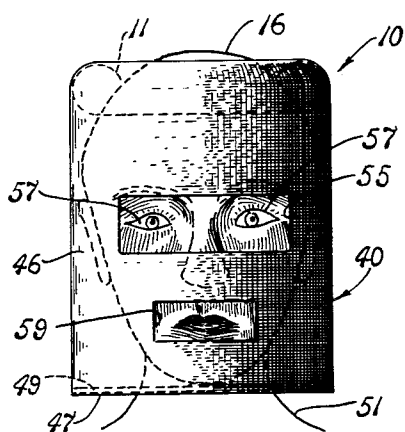


FIG. 1.

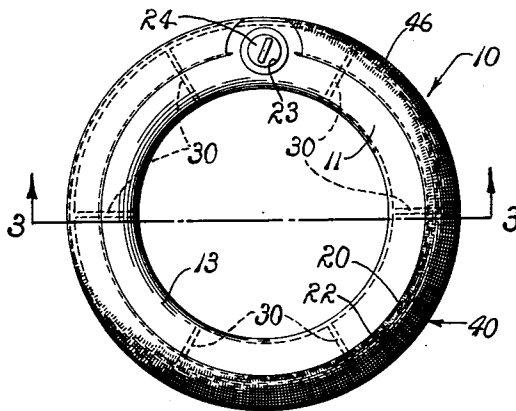


FIG. 2.

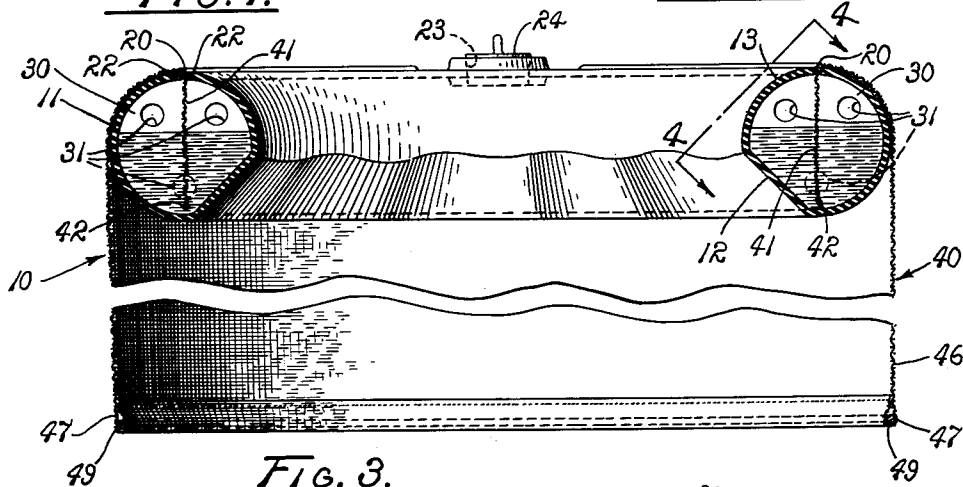


FIG. 3.

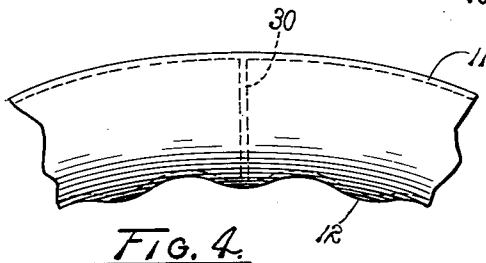


FIG. 4.

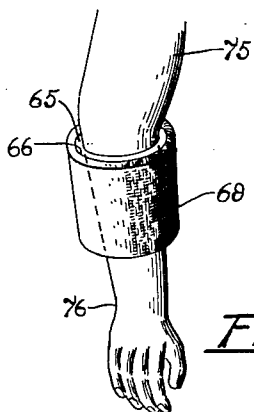


FIG. 5.

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BODY COOLING AND PROTECTING APPAREL

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9 Claims. (Cl. 2-7)

The present invention relates to body cooling and protecting apparel and more particularly to a device adapted to be worn on the body and which shields parts of the body and promotes evaporation adjacent to the body for cooling the same.

Notwithstanding advances in mechanization, many farm and field laborers are still required to spend long hours working in the field during hot summer months. During such labor, the workmen are not only subjected to the intense heat of the sun, but also to dirt and dust, wind and various insects. It is therefore common for such workmen to wear hats, kerchiefs, bandannas, and the like, in an effort to provide some barrier between their bodies and these external sources of discomfort.

Conventional hats shield the head against the direct rays of the sun to prevent sunburn but do little else to minimize the wearer's discomfort under the conditions outlined above. The wearer's head still becomes hot and moist with perspiration. Further, a hat offers a minimum of protection to the face and neck and it fails to shield the eyes, ears, nose and mouth from dust, air pollutants, the wind, and insects. It is also known to wear goggles or sunglasses but these also fail to give a complete protection of the type desired.

In addition to farm workers, there are other workers for whom cooling and protection from such sources of discomfort is desired as, for example, painters, earth-working equipment operators, welders, steel mill workers and the like. The subject invention is therefore not limited as to any particular type of user described but is intended to function for its intended purpose in any application to which it is suited.

It is an object of the present invention to provide improved body cooling and protecting apparel.

Another object is to provide a device which is adapted to be worn on the body and which promotes evaporation adjacent to the body to cool the same.

Another object is to provide a cooling shield or barrier between a part of the body and certain external sources of discomfort such as sun- wind, air pollutants, insects, and the like.

Another object is to provide an evaporative cooling device adapted to be worn on the head, the arms, hands, legs, and other parts of the body.

Another object is to cool the head and area of the body around the head and thereby to provide a cooling effect for the entire body.

Another object is to minimize worker fatigue and loss of energy as a result of excessive perspiration and the general body discomforts of working in hot, dry climates.

Another object is to provide a body cooling and protecting device which may be worn by various workmen, and others, with a minimum of interference with their tasks.

Another object is to provide a device of this nature which is easy to clean and to maintain.

Other objects are to provide a protecting and cooling

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device which is simple and economical to construct, which is comfortable to wear, which is dependable in operation, and which is highly effective for accomplishing its intended purposes.

These, together with other objects, will become more fully apparent upon reference to the following description and accompanying drawing.

In the drawing:

Fig. 1 is a face view of the subject body cooling and protecting apparel as applied to the head of a wearer.

Fig. 2 is a somewhat enlarged top plan view of the subject apparel.

Fig. 3 is a still further enlarged transverse section taken on line 3-3 of Fig. 2 and partly broken away for illustrative convenience.

Fig. 4 is a fragmentary view taken from a position indicated by line 4-4 of Fig. 3.

Fig. 5 is a fragmentary view of a person's arm showing a body cooling and protecting apparel according to a second form of the present invention attached to the arm.

Referring more particularly to the drawing, a body cooling and protecting apparel embodying a first form of the present invention is illustrated in Fig. 1 at 10. The apparel includes an annular flexible container 11 of rubber, plastic, or like material, having a lower undulated surface 12 and an upper surface 13. The lower surface of the container is adapted to rest comfortably on the head 16 of a wearer. It is to be understood that although the container is illustrated and described as annular, it may be of other shapes and forms, as for example a hollow pancake form so as to completely cover the top of the wearer's head.

The container 11 has an upper elongated slit 20 extended around substantially the entire circumference of the upper surface 13 of the container and provides communication between the exterior and the interior of the container. The slit is defined by a pair of adjacent container edges 22 yieldably resiliently urged into engagement with each other as a result of the inherent characteristics of the material of the container. The container also has an upwardly disposed port 23 which is releasably covered by means of a cap or plug 24.

A plurality of baffles 30 are rigidly secured within the container 11 and provide apertures 31 therein. A liquid coolant 33, such as water, substantially fills the container 11 and is allowed to circulate throughout the container through the apertures in the baffles. As will be evident, however, the baffles inhibit rapid movement of the liquid in the container and thus prevent sloshing of the liquid incident to movement of the wearer.

An evaporative curtain 40 of perforate, absorbent material, such as gauze, cheesecloth, or the like, provides an upper, inner wick portion 41 extended through the slit 20 in the container 11 and immersed in the liquid 33. The edges 22 of the container are yieldably separated to admit the curtain but naturally press inwardly to sandwich the curtain therebetween and to establish a releasable connection between the container and the curtain. Further, the wick portion has an upper rolled edge 42 which prevents the curtain from sliding outwardly through the slit unless the edges are separated.

The curtain 40 also has a dependent evaporating portion 46 integral with the wick portion 41 and extended from the slit 20 over the outwardly disposed upper surface 13 of the container 11 and thence downwardly in circumscribing relation to the container and thus to the head 16 of the wearer. The dependent portion has a lower seam 47 preferably receiving an annular stabilizing ring 49 which circumscribes the neck 51 of the wearer. Because of the weight of the ring, the ring holds the dependent portion in generally taut condition and in

outwardly spaced relation to the head and face of the wearer. Obviously, when the device is worn in windy weather, the ring serves to minimize blowing and ruffling of the dependent portion.

The dependent portion 46 of the curtain 40 has a window 55 adapted to be located in front of the eyes 57 of the wearer. Also, the dependent portion preferably has a mouth opening 59 below the window and generally in front of the mouth of the wearer.

Operation

The operation of the described embodiment of the subject invention is believed to be readily apparent and is briefly summarized at this point.

The container 11 is initially filled with a coolant liquid 33, such as water, which is preferably but not necessarily cold, and the cap 24 is secured in the port 23. The container 11 is then rested on the head 16 of the wearer so that the curtain 40 extends downwardly around the wearer's head, face, and neck. The device is adjusted so that the window 55 and the mouth opening 59 are in front of the wearer's eyes 57 and mouth, respectively.

The wick portion 41 absorbs liquid 33 in the container 11, and, by capillary action, conducts the same upwardly in the wick portion and thence downwardly along the dependent evaporating portion 46. As the liquid travels downwardly along the curtain it is evaporated in the atmosphere cooling the area around the head 16 of the wearer. Of course, the wearer's head is also cooled by direct contact with the container 11 containing the cooling liquid. Inasmuch as the wearer's head is cooled, this provides a cooling effect to the entire body, reduces dehydration of body fluids, and minimizes excessive perspiration.

The lower surface 12 of the container 11 is undulated to permit passage of air between the container and the wearer's head 16 thus further serving to cool the head and to promote better circulation of the blood. Furthermore, inasmuch as the curtain 40 shields the wearer's head 16 and face, it protects the same against wind, dirt and dust, pollen, flying insects, and the like. Accordingly, workers wearing the apparel of the subject invention experience less fatigue and retain a greater degree of energy because these bodily discomforts are minimized.

The baffles 30 prevent the liquid 33 in the container 11 from sloshing about as the wearer moves his head 16. Thus, liquid hammering and the resultant tendency to slide the container off of the head or out of position is minimized. Further, the ring 49 holds the curtain 40 downwardly and outwardly from the neck 51 and head 16 and stabilizes the device.

In order to replenish the supply of liquid 33, it is merely necessary to remove the cap and refill the container 11. The curtain 40 may be removed for washing or replacement simply by separating the edges 22 and withdrawing the wick portion 41 from the container 11. The ring 49 can be removed from the seam 47 in any convenient manner.

Second form

The second form of the subject invention is illustrated in Fig. 5 and includes an annular container 65 having a slit 66, a filler port, not shown, and a cap 68 releasably closing the port. An evaporating curtain 69 is immersed in liquid coolant 70 in the container, is extended through the slit, and hangs downwardly from the container in the same manner as that previously described in connection with the first form of the invention.

The difference between the first and second forms of the invention is that the container 65 and the curtain 69 are of smaller diameter and are adapted to fit snugly about an arm 75, a wrist 76, a leg, or the like, of the body of the wearer. When positioned on the arm 75, for example, the curtain 69 extends downwardly from the

container in circumscribing relation to a portion of the arm adjacent to the container. The arm is of course cooled by direct contact with the container and by evaporation of coolant absorbed into the curtain 69.

From the foregoing, it will be evident that a body cooling and protecting apparel have been described which serve not only to maintain the body cool but also acts as a shield between the body and such external sources of discomfort. The device is particularly suited for use by those who labor for long periods in hot and dry environments. Further, the device has utility in affording relief and protection of a wearer against the harmful effects of air pollution such as smog, and the like.

Although the invention has been herein shown and described in what is conceived to be the most practical and preferred embodiments, it is recognized that departures may be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices and apparatus.

Having described our invention, what we claim as new and desire to secure by Letters Patent is:

1. An evaporative body cooling device adapted to be used as an article of wearing apparel comprising an annular flexible container adapted to be supported on the head of a wearer having an upwardly disposed surface providing a slit opening into the container and extended about substantially the entire circumference of the container, and a filler port opening into the container; a cap releasably covering the port of the container; a cooling liquid in the container; and a curtain of absorbent material having an upper, inner wick portion extended through the slit and immersed in the liquid in the container, and an outer downwardly dependent perforate portion integral with the wick portion and extended downwardly from the container in circumscribing relation to the head of the wearer for conducting liquid absorbed into the curtain through the wick portion and for promoting evaporation thereof to cool the area around the head of the wearer.

2. The cooling device of claim 1 wherein the dependent portion of the curtain is provided with a window adapted to be located in front of the eyes of the wearer.

3. The cooling device of claim 1 wherein circumferentially spaced baffles are secured within the container to minimize liquid movement in the container incident to movement of the container.

4. The cooling device of claim 1 including a substantially rigid ring connected to the dependent portion of the curtain and adapted to circumscribe the neck of the wearer to hold the dependent portion in downwardly spaced relation to the container and in outwardly spaced relation to the head of the wearer.

5. The cooling device of claim 1 wherein the container has a lower undulated surface adapted to permit ventilation between the container and the head of the wearer.

6. An evaporative cooling device adapted to be used as an article of wearing apparel comprising an annular container adapted to be supported about a portion of the body of a wearer and having an upwardly disposed surface providing an opening into the container and extended about substantially the entire circumference of the container, and a filler port opening into the container; a cap releasably covering the port of the container; a cooling liquid in the container; and a curtain of absorbent material extended through the opening in the container and immersed in said cooling liquid, the curtain hanging downwardly from the container to a position below the liquid in the container so as to absorb said liquid from the container, conduct the liquid downwardly by siphon effect, and evaporate to cool the portion of the wearer adjacent to the curtain.

7. An evaporative cooling device adapted to be used as an article of wearing apparel comprising an annular

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flexible container adapted to be supported about a portion of the body of a wearer and having an upwardly disposed surface providing a slit opening into the container and extended about substantially the entire circumference of the container, the slit being defined by a pair of opposed clamping edges releasably resiliently urged toward each other, and a filler port opening into the container; a cap releasably covering the port of the container; a cooling liquid in the container; and a curtain of absorbent material extended through and releasably held by the edges of the slit opening in the container and immersed in said cooling liquid, the curtain hanging downwardly from the container to a position below the liquid in the container so as to absorb said liquid from the container, conduct the liquid downwardly by siphon effect, and evaporate to cool the portion of the wearer adjacent to the curtain.

8. An evaporative cooling device for use as an article of wearing apparel comprising an annular container adapted to be supported on the head of a wearer and having an upwardly disposed surface providing an opening into the container and extended about substantially the entire circumference of the container, and a filler port opening into the container; a cap releasably covering the port of the container; a cooling liquid in the container; and a curtain of absorbent material extended through the opening in the container and immersed in said cooling liquid, the curtain hanging downwardly from

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the container about the head of the wearer for absorbing said liquid from the container whereby the liquid is evaporated to cool the area around the head of the wearer.

9. An evaporative cooling device adapted to be used as an article of wearing apparel comprising an annular container adapted to be supported about a portion of the body of a wearer and having an upwardly disposed surface providing an opening into the container and extended about substantially the entire circumference of the container, and a filler port opening into the container; a cap releasably covering the port of the container; a cooling liquid in the container; and a unitary circular curtain of absorbent material extended through the opening in the container and immersed in said cooling liquid, the curtain being suspended from the container in circumscribing relation to the portion of the body to be cooled whereby said liquid is adsorbed from the container and evaporated to cool such area by the curtain.

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