

Feb. 25, 1969

I. GOLDMERSTEIN

3,429,138

COOLING VEST

Filed April 27, 1967

Sheet 1 of 3

Fig. 1.

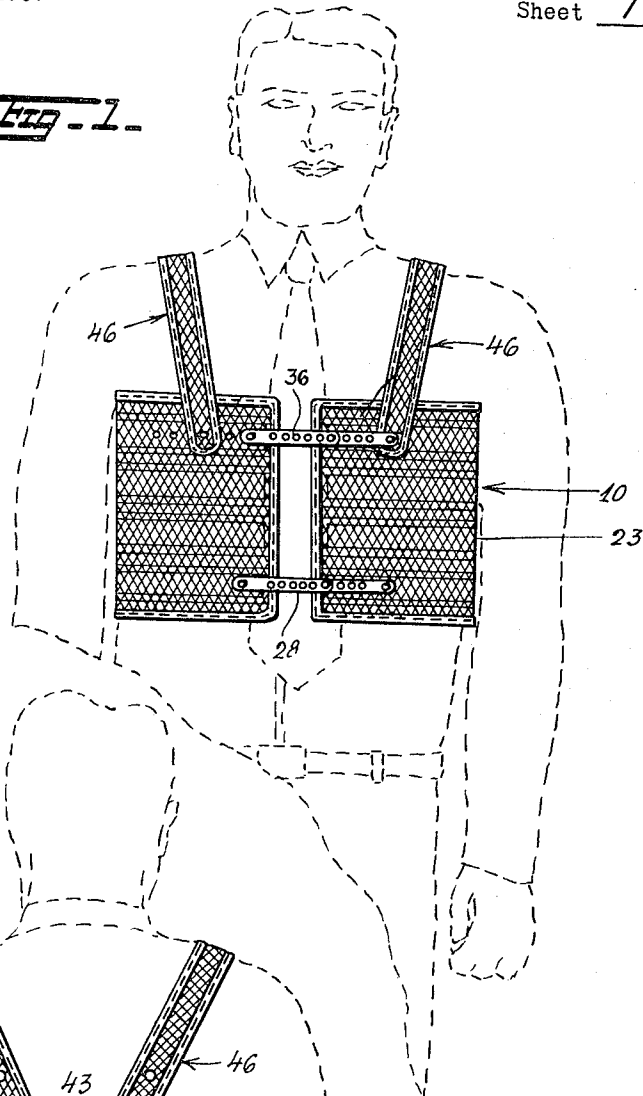
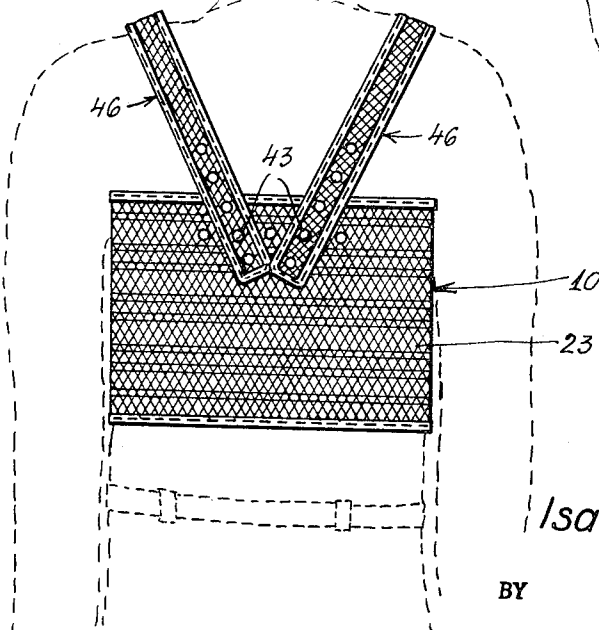


Fig. 1A.



INVENTOR

Isaac Goldmerstein

BY

Golachek & Saulsbury
ATTORNEYS

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Sheet 2 of 3

Fig. 2.

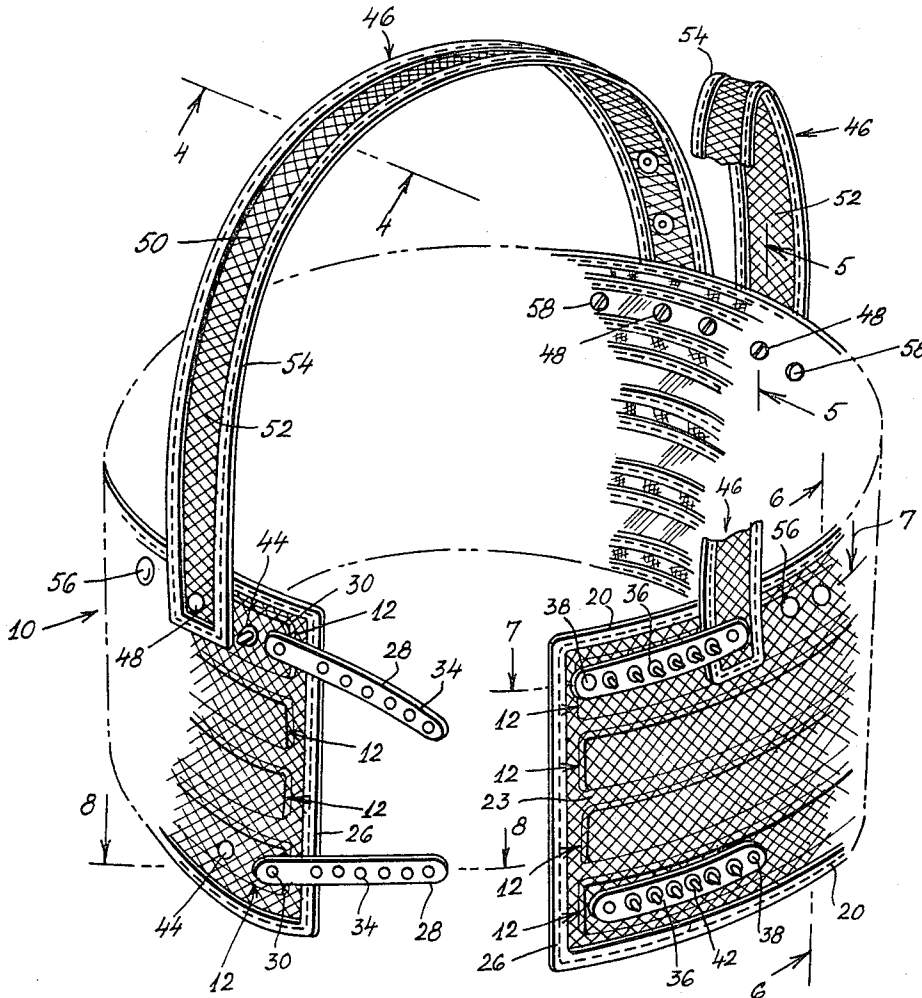
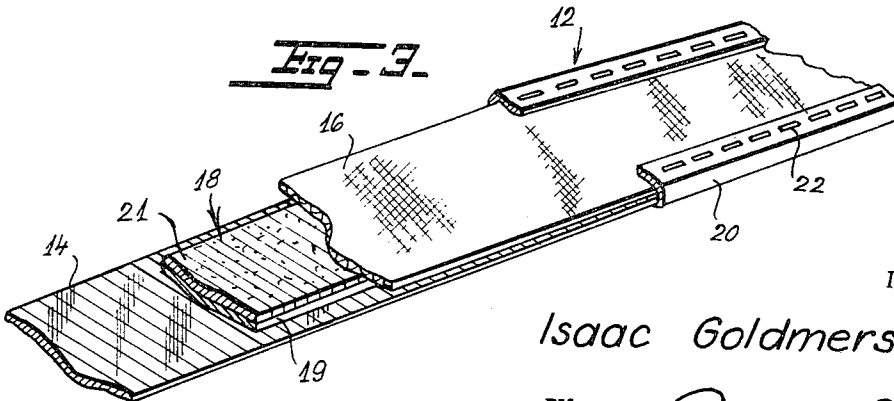


Fig. 3.



INVENTOR

Isaac Goldmerstein

BY

Polach & Saulsbury
ATTORNEYS

Feb. 25, 1969

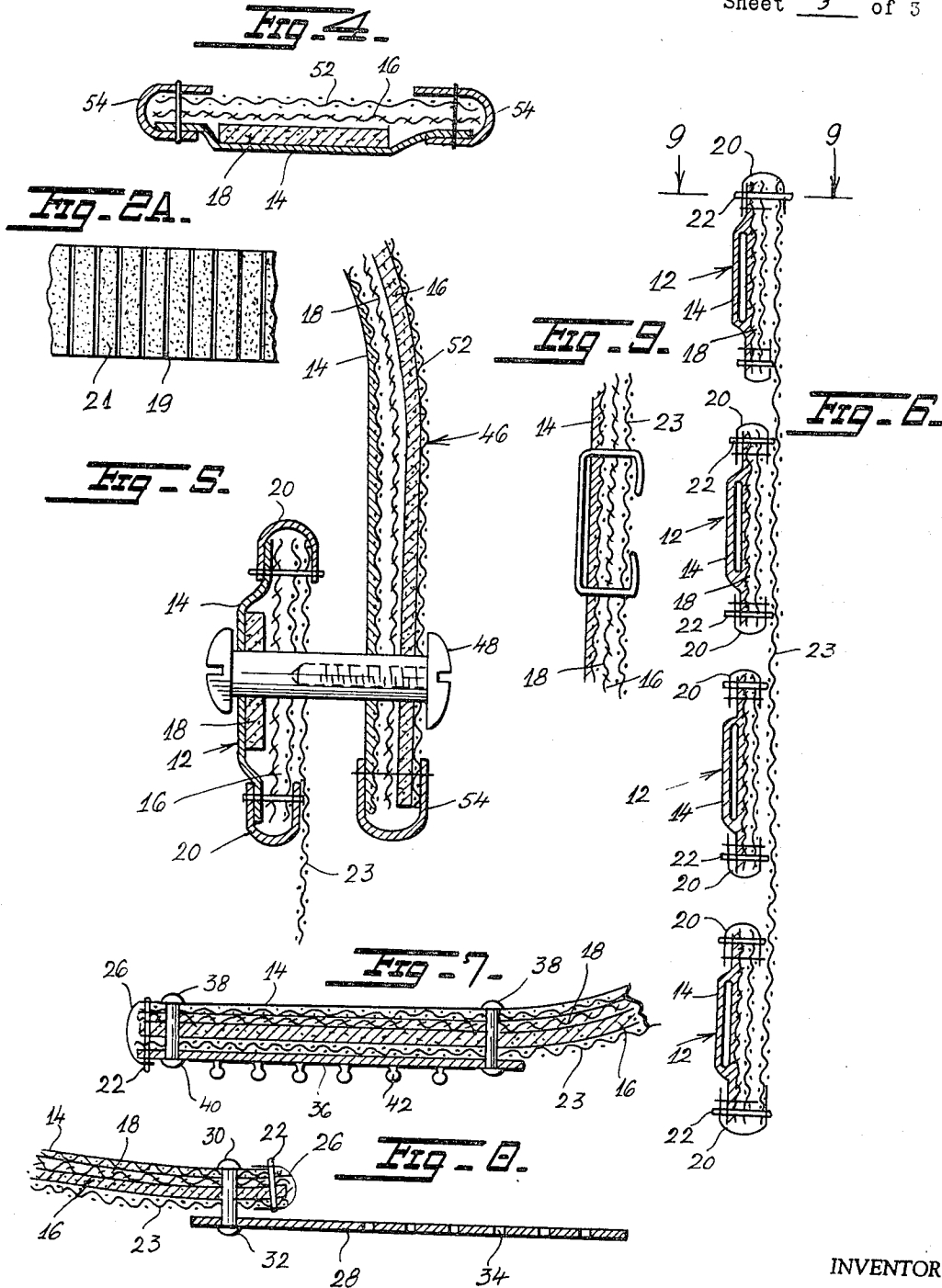
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Sheet 3 of 3



INVENTOR

Isaac Goldmerstein

BY

Polachuk & Saulbury
ATTORNEYS

1

2

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COOLING VEST
Isaac Goldmerstein, 210 Riverside Drive,
New York, N.Y., 10025
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5 Claims

ABSTRACT OF THE DISCLOSURE

A cooling vest formed of a rectangular strip of material shaped to form a wide band body. The band-shaped body is formed of a single rectangular ply of nylon or plastic mesh material on one side thereof and a series of rectangular three-ply strips on the other side thereof. Each strip is formed of an inner ply of thin corrugated metallic foil of highly heat and cold conductive material, a thin outer ply of fabric, and an intermediate ply of absorbent evaporator material such as sponge including a thin band of cotton and cross pieces of sponge placed thereon in crosswise fashion for connecting the sponge pieces together. The three-ply strips are secured at their ends to the ends of the nylon or plastic mesh material. Detachable fastening means such as perforated straps on one end of the band body and coating lugs on the other end detachably connect the ends of the band body to each other. Shoulder straps attached to the topmost three-ply strip support the vest from the shoulders of the wearer.

A primary object of the invention is to provide a wide band for encircling the outer garment on a person's body for acting as a cooling agent for the body.

Another object of the invention is to provide a wide band composed of a series of spaced aligned bands or strip members, each with an inner ply of conductive material such as corrugated metallic foil, an outer ply of thin fabric material and an intermediate ply constituting an absorbent evaporator member such as sponge which can be soaked with water or other cooling fluid for evaporation cooling the strip members adapted to encircle an outer garment on the body of a person and to contact the evaporator member for cooling of the conductive strips as the cooling fluid evaporates from the evaporator members.

Brief description of the views of the drawings

FIGURE 1 is a front elevational view of a cooling vest embodying the invention in operative position on a person and FIGURE 1A is a rear elevational view of said vest.

FIG. 2 is a part perspective view and part diagrammatic view of the cooling vest shown in FIG. 1, parts being shown broken away.

FIG. 2A is a top plan view of a portion of the strip of absorbent evaporator material, on an enlarged scale.

FIG. 3 is a top perspective view of a portion of the body of the vest, parts being shown broken away.

FIG. 4 is an enlarged cross-sectional view taken on the plane of the line 4-4 of FIG. 2.

FIG. 5 is a vertical sectional view taken on the plane of the line 5-5 of FIG. 2.

FIG. 6 is a vertical sectional view taken on the plane of the line 6-6 of FIG. 2.

FIG. 7 is a horizontal sectional view taken on the plane of the line 7-7 of FIG. 2.

FIG. 8 is a horizontal sectional view taken on the plane of the line 8-8 of FIG. 2.

FIG. 9 is a cross-sectional view taken on the plane of the line 9-9 of FIG. 6.

Detailed description of the drawings

Referring now in detail to the various views of the draw-

ings, in FIG. 1 a cooling vest made in accordance with the present invention is shown adapted to the upper torso of a person and is designated generally at 10.

The coolant vest 10 includes a series of aligned and spaced rectangular strip members 12 looped to form a band. Each strip member 12 is a three-ply construction, an inner ply 14 as viewed in FIG. 2, of conductive material, preferably a thin strip of corrugated metallic foil or similar reflective and highly heat and cold conductive material. An outer ply 16 of thin fabric material, and an intermediate ply 18 constituted by a thin band 19 of cotton and a plurality of pieces of absorbent evaporator material such as sponge 21 placed side by side thereon and connected by the cotton band 19. Edging 20 binds peripherally the plies 14, 16, stitches 22 being provided through the edging end plies.

The strip members 12 are held in aligned and spaced relation and secured together by means of a wide cover 23 band of nylon or plastic mesh material, covering the outer surface of the strip members 12. The fabric edging 20 secures the top end edge of the mesh band 23 to the top edge of the topmost strip member 12 is viewed in FIG. 2, and the fabric edging 20 secures the bottommost end edge of the mesh band 23 to the bottommost edge of the bottom strip member 12. Similar fabric edging 26 fastens the ends of the mesh band 23 to the ends of the strip members 12 so that the strip members are held in aligned spaced relation.

Narrow straps 28 of plastic are pivotally secured at one end by means of bolts 30 and nuts 32 to the topmost and bottommost strip members 12 adjacent the ends thereof. The straps 28 are formed with a series of spaced holes 34. Similar straps 36 are secured lengthwise of their bodies to the topmost strip member 12 and the bottommost strip member 12 by means of bolts 38 and nuts 40.

Lugs 42 are anchored to the strap and extend outwardly of the strap for cooperation with the holes 34 in the straps 28 for detachably and adjustably connecting the ends of the vest to each other around the wearer. A series of spaced holes 44 is formed in each of the topmost and bottommost strip members 12 for receiving the bolt 30 and nut 32 fastening members for adjusting the length of the body of the vest.

A pair of shoulder straps 46 is secured at one end of the topmost strip member 12, midway the ends thereof by sectional screws 48 passing through aligned holes in the ends of the straps and in the topmost strip member 12. One of the shoulder straps 46 is secured at its other end to the topmost strip member 12 adjacent one end thereof, and the other shoulder strap is secured at its other end to the topmost strip member at the other end thereof. Each shoulder strap 46 comprises an elongated strip member 50 similar in construction to strip member 12 but the fabric ply 16 of the strip member 50 is covered with nylon or plastic mesh material 52 similar to the nylon mesh cover 23. Edging 54 similar to edging 20 covers the peripheral edge of the strip member 50. A series of holes 56 is formed in the topmost strip member 12 inwardly of the inner ends of the straps 28 and 36 for adjustably receiving the sectional screws 48 for adjusting the straps along the body of the vest. Holes 58 are formed midway the ends of the topmost strip member 12 for the same purpose.

The cooling vest is especially flexible in all directions and therefore the cooling vest touches the body of the wearer perfectly well. As a result, the cooling effect of the cooling vest, so made, is very effective.

In use, the entire vest 10 is dunked in water or other cooling fluid. The wetted vest is placed over the shoulders of the outer garment on the body of the wearer and fastened around the upper portion of the torso of the wearer as shown in FIG. 1. As the temperature of the weather and of the body of the wearer increases the rate

3

of evaporation of the cooling fluid increases. The cooling is directly transferred to the conductive layer 14 and by the layer to the body of the wearer. Likewise heat from the wearer's body is transferred by the conductive layer 14 to the evaporator member 18 for evaporation of the cooling fluid. Substantial cooling of the conductive layer 14 takes place for a substantial length or period of time.

The cooling vest regarding cooling effect, covers the most sensitive part of the body. Furthermore, the part of the body under the cooling vest even by breathing motionless, touches continuously different parts of the cooling vest and this creates a pleasant feeling of coolness so badly needed when it is hot.

However, by working, walking and so on, the body under the cooling vest touches the vest much stronger and on a larger scale and therefore the cooling effect greatly increases. This helps the person in time of work to stand the heat without suffering.

It has been found in practice by wearers of the vest that an immediate and pleasant sensation is produced. The cooling effect is noticed immediately. The vest stops unpleasant perspiration as it has been found to correct to some degree excessive blood vessel dilation in the skin and the circulatory advantage produced by the vest is the cause of the pleasant reaction sensed by the wearer. The effect produced when wearing the vest is somewhat like the effect produced by an air-conditioned enclosure and continues to function even when the feeling of coolness disappears. The vest provides extra support to the neural system of the body by applying a cool stimuli to certain areas of the body skin. The vest accordingly stops excessive sweating and is effective in improving the subjective tolerance of heat.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claims.

I claim:

1. A cooling vest for the human body of the kind described, said vest comprising a split annular body composed of a series of composite strip members in spaced aligned relation; means for holding said strip members in position, each strip member including an annular strip of water absorbent material; means for adjustably and removably securing the vest to the body of the wearer; means for removably supporting the body of the vest on the shoulders of the wearer, the means for securing the vest to the body being constituted by perforated straps anchored at one end to one end of the body and straps secured to the other end of the body, said latter straps mounting spaced lugs cooperating with the perforations in the first-named straps for holding the vest on the body

4

of the wearer, the means for removably supporting the body of the vest on the shoulders of the wearer being constituted by a pair of shoulder straps secured at their ends at opposite points along the top of the body of the vest, the means for holding the strip members in position being constituted by a cover of mesh material secured along the peripheral edges of the top and bottom strip members and along the ends of the strip members.

2. A cooling vest for the human body of the kind described as defined in claim 1, said shoulder straps each including a layer of water absorbant material.

3. A cooling vest for the human body of the kind described as defined in claim 1, wherein the annular strip of water absorbent material is disposed between an inner layer of corrugated metallic foil and an outer layer of thin fabric material, said strip including a thin cotton band and pieces of sponge material across the band and secured thereto, said pieces adapted to fit in the corrugated portions of the layer of metallic foil.

4. A cooling vest for the human body of the kind described as defined in claim 1, and edging securing the peripheral edges of said strip and layers together; means for securing the vest to the body being constituted by perforated straps anchored at one end to one end of the body and straps secured to the other end of the body, said straps mounting spaced lugs cooperating with the perforations in the first-named straps for holding the vest on the body of the wearer.

5. A cooling vest for the human body of the kind described as defined in claim 4, wherein means for removably supporting the body of the vest on the shoulders of the wearer is constituted by a pair of shoulder straps secured at their ends at opposite points along the top of the body of the vest, said shoulder straps each including a layer of water absorbent material and a layer of corrugated metallic foil, and wherein means for holding the strip members in position is constituted by a cover of mesh material secured along the peripheral edges of the top and bottom strip members and along the ends of the strip members.

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WILLIAM J. WYE, *Primary Examiner.*

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2—7; 62—304, 316; 165—46