

Feb. 1, 1949.

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2,460,269

PERSONAL BODY AIR CONDITIONING DEVICE

Filed March 16, 1945

2 Sheets-Sheet 1

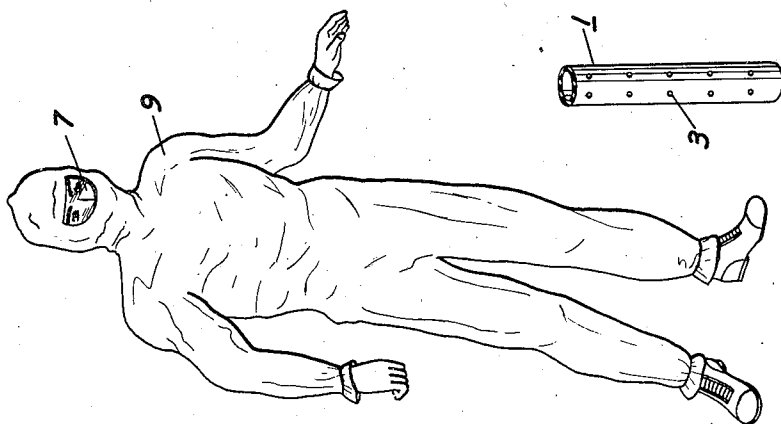


Fig. 4

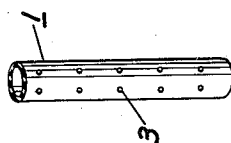


Fig. 3

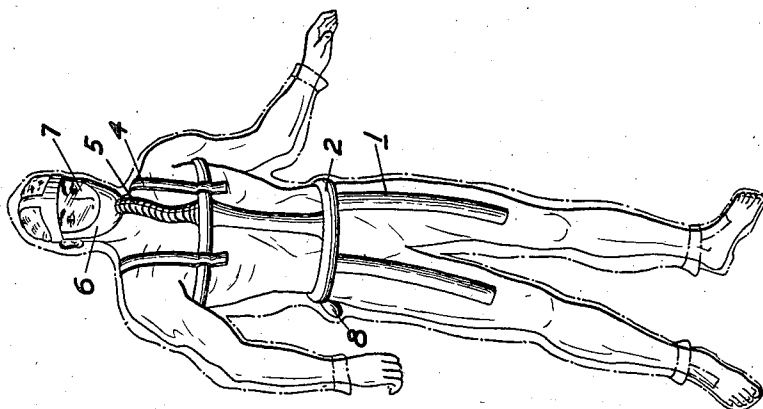


Fig. 2

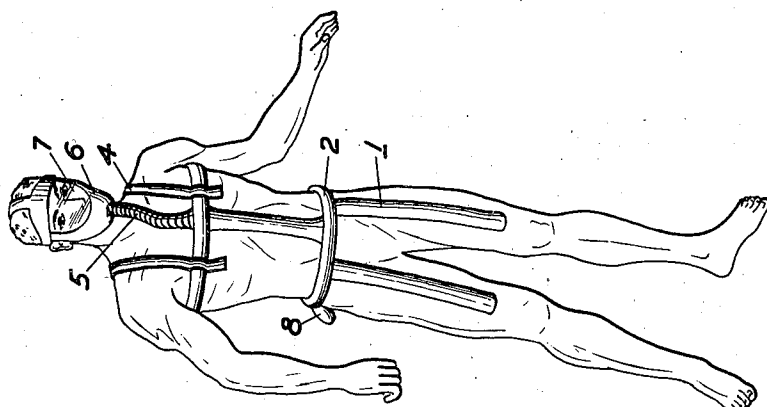


Fig. 1

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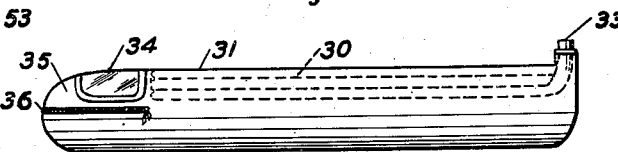
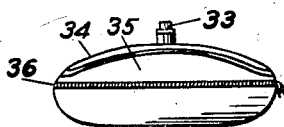
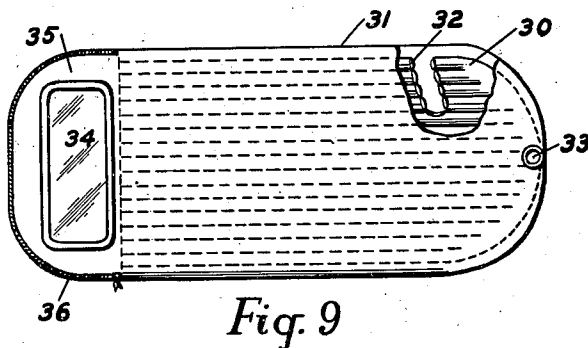
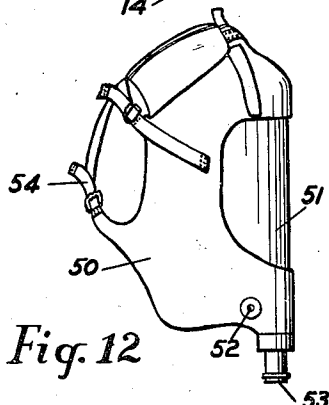
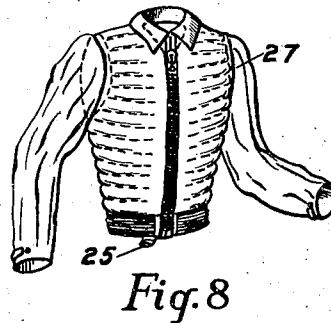
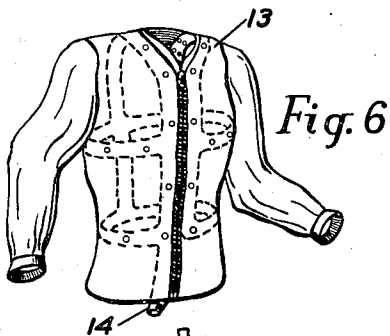
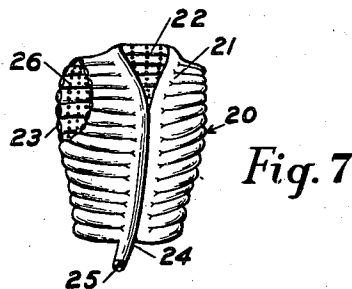
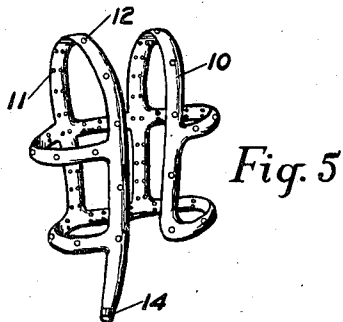
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PERSONAL BODY AIR CONDITIONING DEVICE

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2 Sheets-Sheet 2



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PERSONAL BODY AIR CONDITIONING
DEVICE

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5 Claims. (Cl. 4—160)

(Granted under the act of March 3, 1883, as
amended April 30, 1928; 370 O. G. 757)

1

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates generally to air conditioning devices and more particularly to personal body air conditioning devices.

All devices of this general character made according to the teachings of the prior art, and with which I am familiar, have had no means for individually cooling or conditioning the body of a particular person. In areas where it is impossible, impractical or expensive to condition the air in a whole room or chamber, it has not been possible heretofore to provide conditioning means for the individual bodies of the persons in such room or chamber. This reduces the efficiency of persons working in such a chamber, and it is particularly important where men are in a closed fighting vehicle in that without air conditioning means, it has been impossible under desert and tropical conditions for men to remain in a tank over long periods without complete exhaustion and unconsciousness.

It is, accordingly, an object of my invention to overcome the above and other defects in air conditioning devices for the body of a person, and it is more particularly an object of my invention to provide a personal body air-conditioning device which is simple in construction, light in weight, easy to wear, efficient in operation and economical in cost.

Another object of my invention is to provide an air conditioning device which may be used as a protector against fumes, dust, and poisonous or toxic gases.

Another object of my invention is to provide wearing apparel with means adapted to condition the body.

Another object of my invention is to provide a novel harness, garment or covering having air passages for conditioning the body of an individual person.

Other objects of my invention will become evident from the following detailed description, taken in conjunction with the accompanying drawings, in which:

Figure 1 is a perspective view of my novel air conditioning device with a mask attached thereto;

2

Figure 2 is a perspective view of my novel body conditioning device with mask attached, with the clothing in outline;

Figure 3 is a perspective view of a person wearing clothing under which is adapted to be disposed my novel body conditioning device;

Figure 4 is a fragmentary view showing perforations in my novel body conditioning device shown in Figure 1;

Figure 5 is a perspective view of another form of my novel body conditioning device having fastening members disposed thereon;

Figure 6 is a perspective view of a garment with the body conditioning device shown in Figure 5 attached therein;

Figure 7 is a perspective view of another form of my body conditioning device;

Figure 8 is a view of an outer garment with the novel body conditioning device shown in Figure 7 (shown in dotted lines) disposed underneath thereof;

Figure 9 is a plan view with parts broken away of a sleeping bag with my novel body conditioning device disposed therein;

Figure 10 is an end view of the sleeping bag shown in Figure 9;

Figure 11 is a side elevational view of the sleeping bag shown in Figure 9, and

Figure 12 is a perspective view of a mask for use with my novel body conditioning device.

Referring now to the drawings, Figures 1, 2 and 3 show a shoulder harness 1 comprising interconnected tubular members 2 disposed circumferentially and lengthwise of a body of a person and having perforated portions 3 on the inner surfaces thereof, and shoulder straps 4 for supporting the harness 1. A flexible tubular member 5 leads from the tubular members 2 to a mask 6 having a window portion 7 in the forward part thereof. The mask 6 is adapted to make an airtight connection with the head of a person. A connecting member 8 is provided for connection to any suitable source of conditioned air (not shown). Any suitable form of garment, such as 9 in Figure 3, may be worn over the top of my novel body conditioning harness 1 shown in Figures 1 and 2.

In operation, conditioned air will pass from the conditioned air source, preferably an air conditioning device, to supply conditioned air under

3

pressure, through the connecting member 8 to the tubular members 2 and to the connecting member 5 leading to the inside of the mask 6. The conditioned air will pass through the apertures 3 in the tubular members 2 to condition the body of a person and maintain the temperature of the body within certain predetermined limits, thereby permitting comfortable operation of a tank or other work in an atmosphere where there is an abnormally high temperature and/or humidity or having these combined with dust, fumes, and poisonous or toxic gases. The conditioned air passing to the mask 6, which has an airtight engagement with the head of a person, provides conditioned air for breathing, regardless of the condition of the air in the chamber or room.

Figures 5 and 6 show a form of body conditioning device which comprises circumferentially and longitudinally extending interconnected tubular members 10 having apertures 11 on the inner sides thereof, and snap fastening members 12 on the outer sides thereof for connection to the inside of a jacket 13 as shown in dotted lines in Figure 6. A connecting member 14 is provided for connection to a source of conditioned air (not shown). It will be evident that a mask as shown in Figure 12 may be attached to and interconnected with the tubular members 10. The operation of the body conditioning device shown in Figures 5 and 6 is similar to the operation of the device shown in Figures 1, 2 and 3.

Figures 7 and 8 show another form of body conditioning device which comprises a jacket 20 fabricated of an impervious or semi-pervious outer member 21 with a semi-pervious liner 22 stitched to it in such a manner as to form tubular air passages 23. A longitudinally extending tubular member 24 is interconnected with the tubular air passages 23 and has a connecting portion 25 for connection to a line leading to a conditioned air source (not shown). It will be evident that a complete suit could be fabricated instead of a jacket without departing from the spirit of my invention. Apertures 26 are shown in the liner 22, but it will be evident that pervious material may be utilized to produce substantially the same result. Figure 8 shows the garment in Figure 7 disposed underneath an outer jacket 27.

A novel cooling blanket 30 and sleeping bag 31 are shown in Figures 9, 10 and 11 in which a construction similar to the garment shown in Figures 7 and 8 is utilized in the upper portion thereof. The cooling blanket 30 is fabricated of pervious or semi-pervious material in a manner as to form tubular air passages 32. The blanket 30 is disposed in the upper part of the sleeping bag 31. Conditioned air from an air conditioned source is fed to the cooling blanket through a connecting portion 33. The sleeping bag 30 has a window 34 in flap 35 and fastening means 36 therefor. When the sleeping bag 30 is closed up, a person can sleep therein under gas attack and conditioned air is continuously fed to the bag to heat or cool the person protected by the bag, whichever is desired. It will be evident that the air conditioning blanket may be made with apertures in the surfaces thereof or pervious or semi-pervious material may be used, whichever is desired. The air conditioning blanket could be used on a bed or any other place independent of a sleeping bag.

Figure 12 shows a mask 50 with a window 51, vents 52, connection 53 and straps 54 for securing the mask in an airtight relationship with the

4

head of a person. It will be evident that any form of suitable mask may be used with my novel body conditioning devices shown in Figures 1, 5 and 7.

From the foregoing, it will be evident that I have provided a body conditioning device for providing tolerability and comfort to the person of individuals in an abnormal atmosphere having high or low temperatures or high humidity or having these combined with dust, fumes, poisonous or toxic gases by providing a harness, garment or blanket having air passages with small orifices and/or interstices in the fabric through which a predetermined quantity of tempered and/or purified air is supplied to all or the portion of the body of a person. Pure temperate air is continuously supplied to the device from external atmosphere or from a purifying and tempering air system.

Various changes may be made in the specific embodiment of my invention without departing from the spirit thereof, or from the scope of the appended claims.

What I claim is:

1. A body conditioning device comprising, in combination, a plurality of interconnected flexible air conduits conformable generally to the contours of the body of a person and disposable on the surface of the latter, said conduits having a multiplicity of apertures therein spaced on the inner side surfaces of said conduits throughout a major portion of the lengths thereof to disperse tempered air from a source of such air throughout the surface area of the body covered by said conduits, and a separate removable cover member of relatively slight porosity for enclosing the air conduits and the portion of the body aerated by said conduits.

2. A body conditioning device comprising, in combination, a plurality of interconnected flexible air conduits conformable generally to the contours of the body of a person and disposable on the surface of the latter, said conduits having a multiplicity of apertures therein spaced throughout a major portion of the lengths of said conduits to disperse tempered air from a source of such air throughout the surface area of the body, and a separate removable cover formed of material of relatively slight porosity for enclosing said ventilating system and the entire body of a person and for receiving air dispersed through said apertures of said conduits.

3. A body conditioning device comprising, in combination, a plurality of interconnected flexible air conduits conformable generally to the contours of the body of a person and disposable on the surface of the latter, said conduits having a multiplicity of orifices therein spaced throughout a major portion of the lengths thereof for dispersing tempered air from a source of such air throughout the surface area of the body covered by said conduits and a garment of relatively slight porosity for enclosing the air conduits and the portion of the body aerated by said conduits.

4. A body conditioning device comprising, in combination, a body harness formed of a plurality of interconnected flexible spaced air conduits having a multiplicity of orifices therein spaced throughout a major portion of the lengths thereof for dispersing tempered air from a source of such air throughout the surface area of the body covered by said harness, and a garment of relatively slight porosity for enclosing the harness and the portion of the body aerated by said harness.

5

5. A body conditioning device comprising a body harness formed of a plurality of interconnected flexible spaced air conduits having a multiplicity of orifices therein spaced throughout a major portion of the lengths thereof for dispersing tempered air from a source of such air throughout the surface area of the body covered by said harness, said harness being adapted to be disposed about the body of a person and to be covered by an outer garment.

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