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Myers

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[54] **VENTILATED SUIT**

[76] Inventor: **Kent R. Myers**, 919 W. Colter Ave., Phoenix, Ariz. 85013

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[51] **Int. Cl.** **A41d 1/02**, A41d 1/06

[58] **Field of Search** ..... 2/227, 79, 80, 93, 2/94, 115, DIG. 1

[56] **References Cited**

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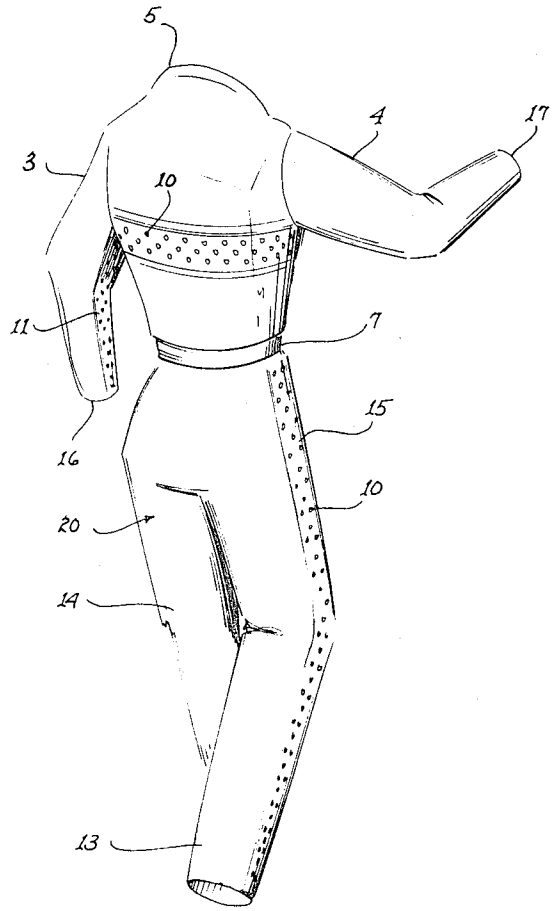
Primary Examiner—H. Hampton Hunter

Attorney—William C. Cahill et al.

[57] **ABSTRACT**

A protective outer leather garment is disclosed, which garment includes a ventilation system to reduce the probability of heat prostration by the wearer. A plurality of apertures, which apertures permit a flow of air intermediate the garment and the wearer, are disposed within low stress areas of the garment. A backing material, which material is pliable and of a low stretch or non-stretch type, is attached adjacent the interior side of the leather in proximity to the apertures. Thereby, the stress concentrations attendant the apertured leather are relieved without affecting the normal pliability of the leather and the inherent comfort of the garment is preserved.

9 Claims, 5 Drawing Figures



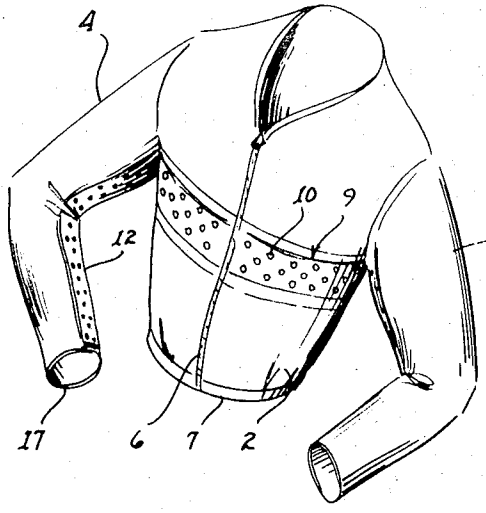


fig. 1

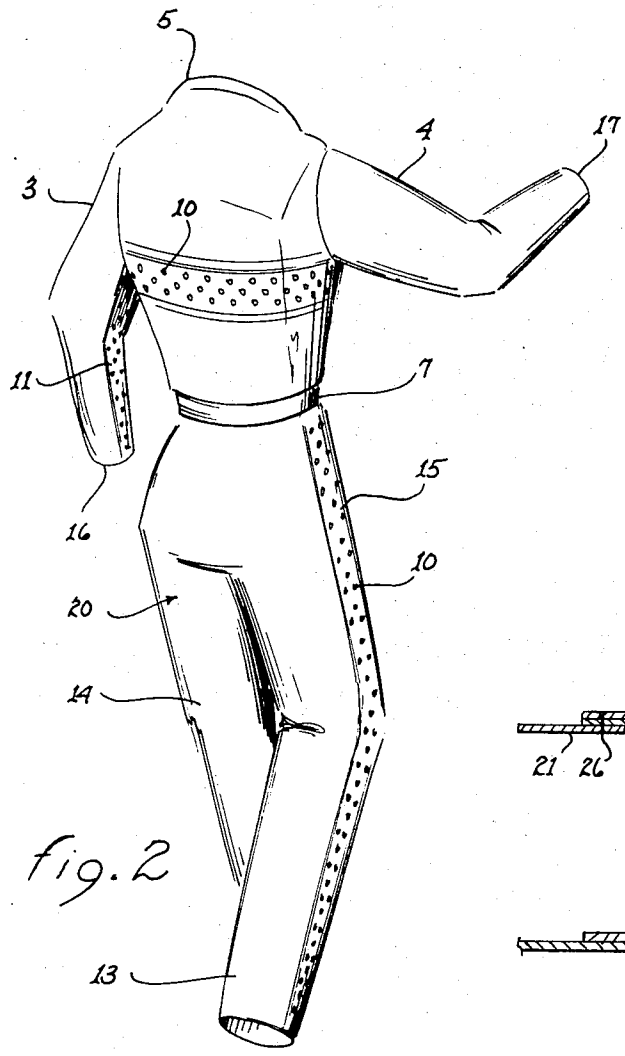


fig. 2

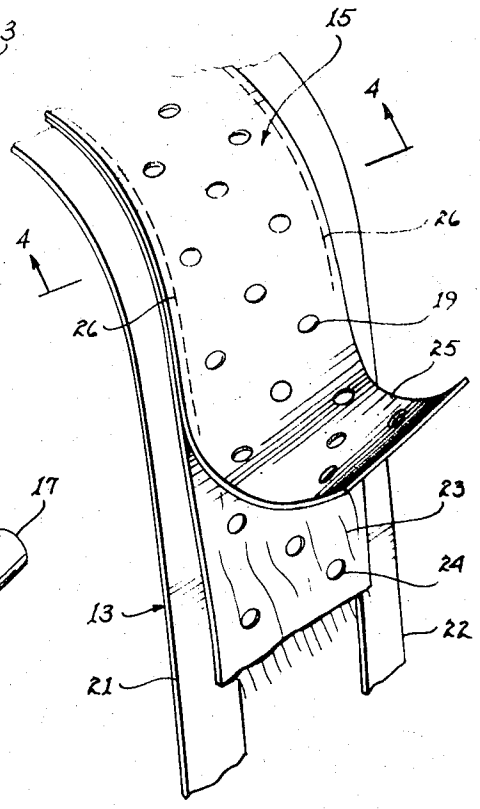


fig. 3

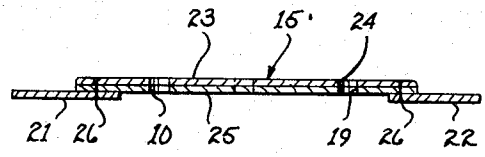


fig. 4

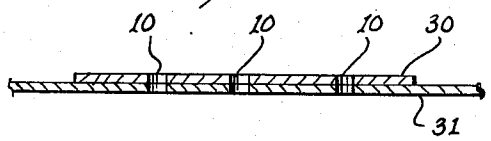


fig. 5

VENTILATED SUIT

The present invention relates to ventilated outer garments, and more particularly, to leather garments protecting the wearer from cuts and abrasions.

Motorcyclists, whether riding in the street, cross-country, or in races, are very susceptible to injury from collision with another vehicle or object. Similarly, spills due to a momentary loss of balance, induced either by an abrupt change in speed or direction of travel, or due to sudden changes in terrain, are not uncommon. The motorcycle, itself, offers little, if any, protection to the motorcyclist during the collision or spill. If the motorcyclist is lucky, he will have sufficient time to jump from the motorcycle or be thrown clear of it. If he is unlucky, he will be crushed by the motorcycle.

When the motorcyclist jumps or is thrown from his motorcycle, he will, of course, strike the ground. As a result of the many serious injuries sustained by motorcyclists hitting the ground or other objects, many states have passed legislation requiring all motorcyclists to wear protective helmets. These helmets have served to reduce the severity of head injuries. However, there has been little, if any, legislative action to enforce the wearing of an effective garment or garments by the motorcyclist to reduce the severity of injuries to the remaining parts of his body.

For years, serious motorcyclists have worn leather jackets and leather pants. Their choice has been predicated upon the inherent properties of leather garments. That is, the leather is sufficiently pliable to conform to the body of the wearer without impeding physical movement. The leather is sufficiently non-porous to guard the wearer against the chilling effect of the wind at high speeds, yet, the porosity of the leather permits the body to "breathe." During a spill, the leather will tend to absorb the abrasive effect of the terrain and thereby protect the wearer against most cuts and abrasions that would otherwise be sustained. Further, the leather, being essentially grainless, will not readily rip or tear and thereby offers a further measure of protection.

Despite the many benefits of motorcyclist's leather jackets and pants, they suffer from one disadvantage. During competition, a motorcyclist exerts a tremendous amount of effort and energy in controlling and manipulating his motorcycle along the race course. The most grueling and exhausting races are, of course, cross-country races where the terrain changes continually. During such races, the body heat of the motorcyclist increases very rapidly, resulting in excessive perspiration. The porosity of the leather jacket and pants, while sufficient for normal activies, is insufficient during the above-mentioned strenuous task. A heat buildup will occur. This heat buildup, unless relieved, may result in heat prostration or at least a diminishing of the mental and physical efficiency of the motorcyclist.

Various attempts have been made in the past to ventilate outer garments. One of the most common methods has been that of attaching a plurality of spacers to the inner surface of the garment. The spacers serve to maintain an air space between the wearer and the garment. U.S. Pat. Nos. 3,213,465; 3,296,626; and 3,045,243 are illustrative of this concept. Another approach has been that of employing a slit in the garment, which slit is normally protected against intrusion of the elements therethrough by some type of flap arrangement, as illustrated in U.S. Pat. Nos. 3,153,793; 3,213,465; and 3,296,626. Where the wearer is subjected to an intense heat source, such as during a welding operation, the garments may be lined with heat reflective material, as shown in U.S. Pat. No. 3,691,564. For garments made of impervious materials and which garments are not subjected to any stresses, parts of the garment may be apertured, as shown in U.S. Pat. No. 3,657,741.

In each of the above described patents, the garment is used as protection against the elements and not as protection against physical injury to the wearer. For this reason, the various vents used need not be capable of and are not capable of withstanding the stresses and strains imposed upon a garment having the function of protecting the wearer against physical injury.

It is therefore a primary object of the present invention to provide a ventilated protective garment.

Another object of the present invention is to provide a pliable form-fitting ventilated outer garment.

Yet another object of the present invention is to provide a ventilation system for an outer garment, which system does not reduce the protective quality of the garment.

Yet another object of the present invention is to provide a ventilation system disposed within a protective garment, which system does not impede nor hinder the normal expected physical movement of the wearer.

A further object of the present invention is to provide a ventilation system for a protective garment, which system will dissipate the excessive body heat generated by strenuous physical activity.

A yet further object of the present invention is to provide a ventilation system for an outer garment, which ventilation system has aesthetic appeal.

A still further object of the present invention is to provide a ventilated leather suit for motorcyclists.

These and other objects of the present invention will become apparent as the description thereof proceeds.

The present invention may be understood with more specificity and clarity with reference to the following figures, in which:

FIG. 1 illustrates the ventilation system of the present invention disposed within a leather jacket.

FIG. 2 illustrates a leather jacket and leather pants incorporating the present invention.

FIG. 3 illustrates the elements of the ventilation system of the present invention when used as decoration on a garment.

FIG. 4 is a cross-sectional view of the present invention, taken along lines 4—4, as shown in FIG. 3.

FIG. 5 is a cross-sectional view of the present invention incorporated as an integral part of a garment.

For reasons expressed above, motorcyclists prefer to use leather outer garments when riding motorcycles. More specifically, it is mandatory from the standpoint of safety that the motorcyclist wear leather clothing while participating in races. The leather garments serve to absorb the impact and scrapping encountered should the motorcyclist take a spill.

Referring to FIGS. 1 and 2, jointly, there are shown typically configured motorcycle jackets 1 and pants 20 modified to incorporate the present invention. The body 2 of jacket 1 is form-fitting, and because it is of leather, will mold itself to the torso of the wearer. The sleeves 3 and 4 are relatively tight fitting about the

arms of the wearer but yet sufficiently pliable to permit unrestricted movement. A zipper 6 is normally used to fasten the jacket as the resulting seam is windproof and sufficiently strong to prevent separation during emergencies. The collar 5, though fitting tightly about the neck of the wearer, does not cause discomfort nor inconvenience because of the soft and pliable nature of the leather. The lower part of body 2 may incorporate a waistband 7. The purpose of waistband 7 is that of providing support for the wearer's kidneys from the jostling and shaking encountered when riding a motorcycle.

A band 9 of apertures 10 is disposed horizontally across the front and back of the jacket 1. The band 9 is horizontal and positioned beneath the armholes of body 2. Similar bands 11 and 12 of apertures 10 are positioned along the inseam of sleeves 3 and 4, respectively. The positions of these respective bands generally correspond to those areas of the jacket 1 which are not subject to contact with the ground in a spill and therefore are not subject to a great deal of stress.

The pants 20, like jacket 1, are of leather and generally form-fitting. They are relatively tight to provide the requisite protection, yet sufficiently pliable and formable to comply with the body contours of the wearer. A further band 15 of apertures 10 is disposed along each pants leg 13 and 14 in the area generally referred to as the side seam.

The bands 9, 11, 12, and 15, being apertured, provide passageways for a flow of air into and out of jacket 1 and pants 20. The actual path of air flow intermediate jacket 1 and pants 20 and the motorcyclist is dependent upon the position of the various other openings to the jacket or pants. In example, the cuffs 16, 17 of sleeves 3 and 4 are generally forwardly oriented and receive the full impact of the air flow. Consequently, air will flow into the sleeves through the cuffs 16, 17 and flow along the sleeve with some leakage through apertures 10 in bands 11 and 12. Or, the air flow may flow into the sleeves 3 and 4 through the apertures 10 within bands 11 and 12. Some of the above-described air flow will flow from the sleeves interior to body 2. Therefrom, the air flow may exit through neck 5 or through apertures 10 within body 9. In a different orientation of the torso of the motorcyclist, the air flow may enter body 2 through apertures 10 of band 9 and exit via the neck 5. Similarly, the air flow may enter through apertures 10 of band 15 and exit via the cuffs of the pants leg, or, for another orientation of the motorcyclist's legs, the air flow may travel in the reverse path.

The net result of the above-described possible paths of air flow is that of evaporating the motorcyclist's perspiration. Thus, the normal body function in controlling and preventing heat buildup can be accommodated and results in a lesser probability of the motorcyclist becoming fatigued due to excessive body heat or suffer from heat prostration.

Referring to FIG. 3, there is shown a detailed view of the structural features of one of the above-described bands of apertures 10, where such a band is used as a decorative as well as a functional element. In example, band 15, which may be of a contrasting color, is disposed as a separate panel intermediate rear panel 21 and front panel 22 of pants leg 13 in the location corresponding to that of the side seam.

Band 15 is formed by a leather strip 25, which leather strip has disposed therein a plurality of apertures 19. As is well known in the mechanical art, a change in the configuration of a stress bearing member may result in a concentration of stress. Unless the member is adequately reinforced or configured to minimize the concentration of stresses, failure may occur. The apertures within the band are of such a nature as to concentrate the stresses imposed upon the garment by the wearer about the apertures. Consequently, the garment may tear in proximity to the apertures. To prevent damage from the concentration of stresses, a matching strip of backing material 23 is adhesively affixed to strip 25. The backing material 23 may be of any one of several types of materials provided that it is essentially stretch-resistent but pliable, in example, naugahyde. Backing material 23 includes a plurality of apertures 24, which apertures correspond in position to those of strip 25. The composite formed by the leather strip 25 and backing material 23 is stitched by stitches 26 to each of panels 21 and 22.

Referring to FIG. 4, there is shown a cross-sectional view of the band 15 positioned intermediate panels 21 and 22. The corresponding apertures 24 and 19 form apertures 10, as discussed above. The method of attachment of band 15 to the pants leg 13 will not deform the pants leg nor cause any discomfort to the wearer.

the inherent protective properties of the leather garments are maintained because of the incorporation of a leather strip within band 15. The addition of backing material 23, being essentially unstretchable, will prevent the concentration of stresses attendant each of apertures 19 within the leather strip from causing the strip to tear or be damaged.

Referring to FIG. 5, there is shown a cross-sectional view of an apertured leather band 31, where the band is formed by the positioning of the apertures 10 rather than by a separate apertured composite strip. In this configuration, the backing material 30 is adhesively affixed to the leather garment in a location corresponding to the location of the to be formed apertured band 31. A plurality of apertures 10 are than jointly formed in the panel and backing material. The backing material 30, being essentially non-stretchable, prevents the concentration of stresses attendant to each of apertures 10 from tearing or otherwise deleteriously affecting the panel during strenuous activity.

While the principles of the invention have now been made clear in an illustrative embodiment, there will be immediately obvious to those skilled in the art many modifications of structure, arrangement, proportions, the elements, materials, and components, used in the practice of the invention which are particularly adapted for specific environments and operating requirements without departing from those principles.

I claim:

1. A ventilated leather garment for protecting the wearer against injury, said garment comprising:

A. a form-fitting leather jacket having a torso and sleeves;

B. a first and second plurality of apertures disposed within the front and back, respectively, of said torso, said apertures defining a first and second band of apertures across the front and back, respectively;

C. a third plurality of apertures disposed in proximity to the inseam of each of said sleeves, said third plurality of apertures defining a third band of apertures along each said sleeve;

D. pliable backing material disposed adjacent each of said first, second and third bands, said backing material being essentially unstretchable; and

E. a plurality of apertures disposed within said backing material, each one of said plurality of apertures being coincident with corresponding ones of said apertures within said first, second, and third bands; whereby, the concentration of stresses attendant said apertures of said jacket are accommodated by said backing material to prevent tearing of the leather.

2. The garment as set forth in claim **1** wherein said first and second band of apertures extend across the front and back of said torso.

3. The garment as set forth in claim **2** wherein said first and second band of apertures extend horizontally about said torso beneath the arm holes.

4. The garment as set forth in claim **1** wherein said third band of apertures extends along the inseam of each of said sleeves.

5. The garment as set forth in claim **1** wherein:

A. said first band and said corresponding backing material are formed as a first strip, said first strip being inserted as a panel of the front of said torso;

B. said second band and said corresponding backing material are formed as a second strip, said second strip being inserted as a panel of the back of said torso; and

C. said third band and said corresponding backing material are formed as a third strip, said third strip being inserted as a panel of each of said sleeves.

6. The garment as set forth in claim **1** including:

A. a pair of form-fitting leather pants;

B. a fourth plurality of apertures disposed along each pants leg, said fourth plurality of apertures defining a fourth band of apertures;

C. pliable backing material disposed adjacent said fourth band, said backing material being essentially unstretchable; and

D. a plurality of apertures disposed within said backing material, each one of said plurality of apertures being coincident with corresponding ones of said apertures within said fourth band.

7. The garment as set forth in claim **6** wherein said fourth band and said corresponding backing material are formed as a fourth strip, said fourth strip being inserted as a panel of each of the legs of said pants.

8. The garment as set forth in claim **6** wherein said fourth band of apertures extends along the side seam of said pants.

9. A ventilated leather garment for protecting the wearer against injury, said garment comprising:

A. a pair of form-fitting leather pants;

B. a plurality of apertures disposed along each pants leg, said plurality of apertures defining a band of apertures;

C. pliable backing material disposed adjacent said band, said backing material being essentially unstretchable; and

D. a plurality of apertures disposed within said backing material, each one of said plurality of apertures being coincident with corresponding ones of said apertures within said band; whereby, the concentration of stresses attendant said apertures of said pants are accommodated by said backing material to prevent tearing of the leather.

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