United States Patent

Hyman

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[54] ONE-PIECE OUTERWEAR WITH CUSHION

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[52] **U.S. Cl.** **2/84,** 2/82, 2/94

[51] **Int. Cl.** **A41d 3/00**

[58] **Field of Search** 2/84, 79, 80, 91, 82, 94, 272, 2/DIG. 3

[56] **References Cited**

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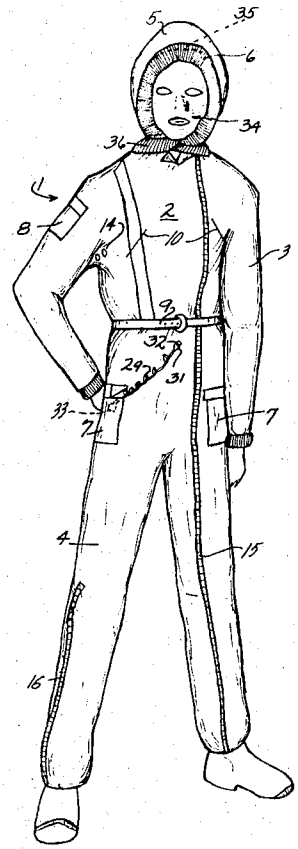
[57] **ABSTRACT**

A cold weather garment constructed of an impervious outer shell which is attached to an inner layer of porous pile fabric, leaving air spaces for air flow between the layers. The garment is particularly adapted for winter sports which require the wearer to be seated and has, therefore, an air cushion fixed between the garment layers from the small of the back to mid-thigh. The cushion has air tubes and pockets in a pattern contoured to fit the form of the legs and seat of the wearer. The cushion is inflated through an extendable tube connecting to the cushion and stored in a side pocket of the suit. A full length zipper extending from the neck down the front and along the inside of one leg, and a second zipper on the other leg facilitate removal of the garment. Also included is a hood with a knit face mask that can be retracted and stored within the hood when not desired to be positioned over the face.

11 Claims, No Drawings



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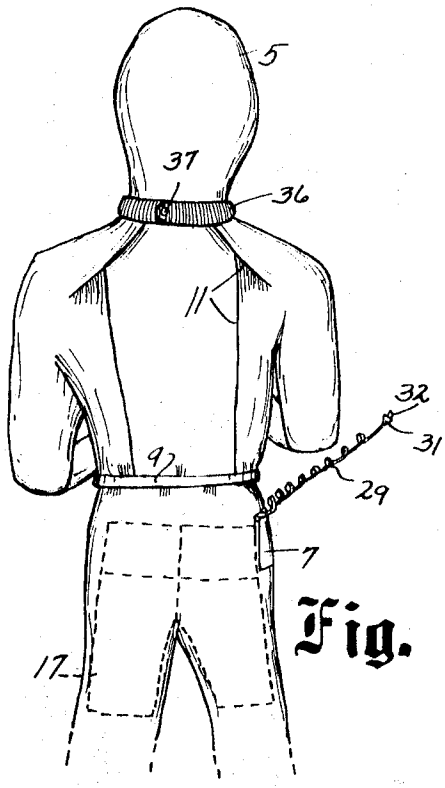

Fig. 2

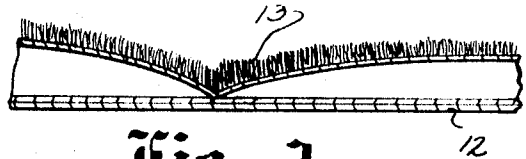

Fig. 3

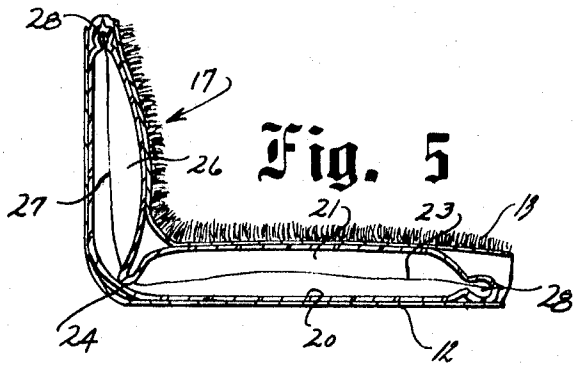

Fig. 5

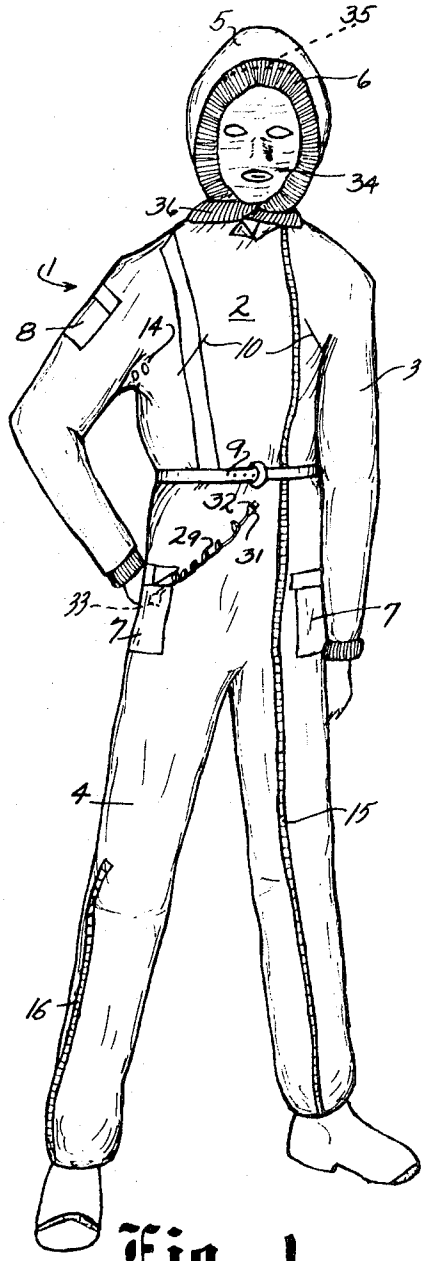

Fig. 1

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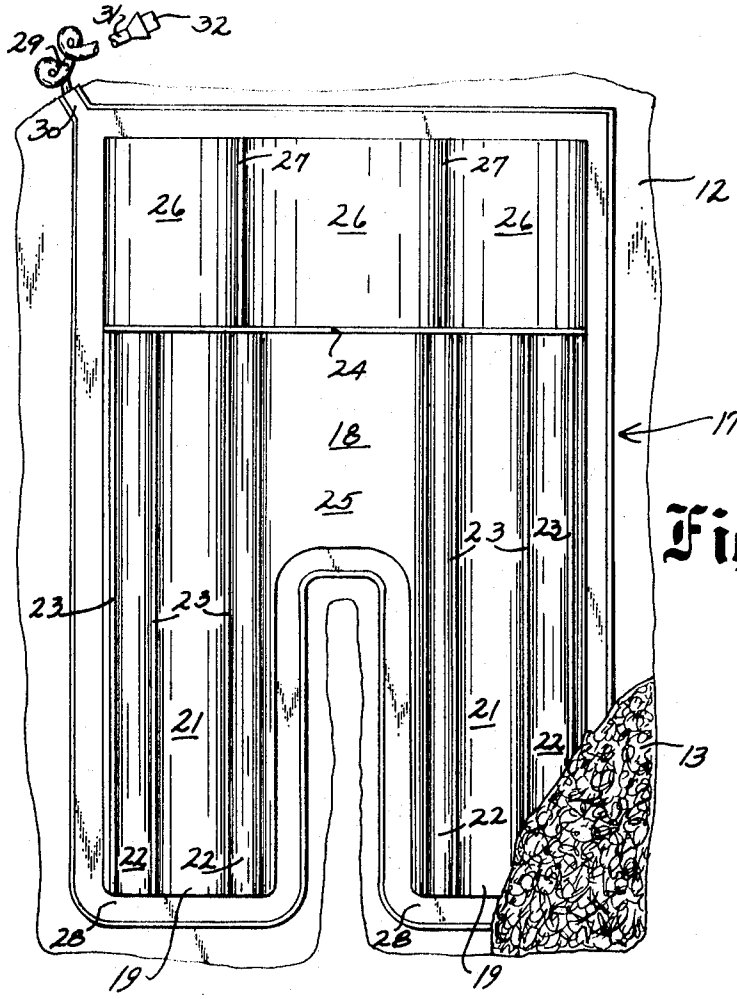

Fig. 4

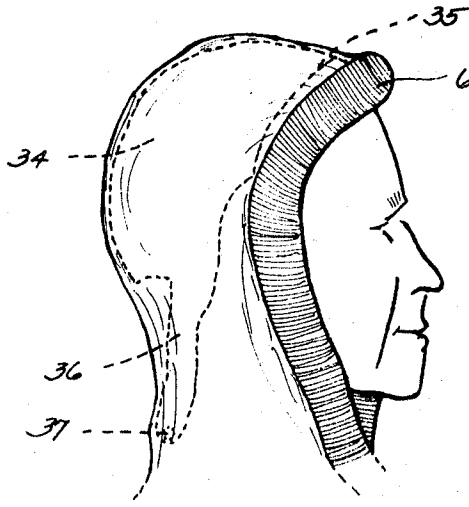

Fig. 6

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ONE-PIECE OUTERWEAR WITH CUSHION

BACKGROUND OF THE INVENTION

This invention relates to garments for outdoor wear and more particularly to protective sport suits for cold weather sports.

In such winter and fall activities as snowmobile riding, attendance at outdoor games such as football and other similar activities, there are special needs for clothing. For instance, in snowmobiling, there are special problems in comfort, due to the fact that the winter wear should protect from the wind. Generally, outerwear for this use includes a plastic outer shell, which protects from the wind but is found to retain perspiration and thus cause moisture problems within the suit.

Further, these sports usually require the sportsman to remain seated for long periods. It is desirable to have cushioning, but loss of freedom of movement and inconvenience should be avoided. Also,particularly for snowmobiling, loss of stability can result from a bouncy or improperly shaped cushion.

It is often desired to have a full length protective suit for such winter activities. However, full suits are sometimes inconvenient in that they are difficult to slip into or out of when heavy shoes or boots are worn.

SUMMARY OF THE INVENTION

The invention is directed to a garment that is especially adaptable for winter or fall sports such as snowmobiling, attendance at outdoor sporting events, and the like. The garment of the invention has primary advantages in comfort, convenience and freedom of movement, which were previously problems in this art as mentioned above. The invention has less important advantages which will appear from the description and drawings.

The garment of the invention is a one-piece suit constructed to protect from the elements but to permit air circulation. For this purpose, the suit has an outer, impervious layer for wind protection, and an inner layer of porous pile fabric, with air space in between, so that the air can freely circulate through the pile fabric and within the air space. For comfortable seating, an air cushion is built into the suit between the layers and extends from the small of the back to mid-thigh. The air cushion is especially advantageous for snowmobiling in that it includes air pockets and air tubes separated by seams in a manner providing a contour for the cushion which fits the seat and thighs of the wearer. Unlike a simple air pillow, the cushion thus provides freedom of movement and does not impair the stability of the wearer as he rides a snowmobile. The cushion is inflated by use of a retractable air tube which stores in a side pocket of the suit.

The one-piece suit has a full length zipper extending from the neck down the front and down the inside of one pant leg to an ankle. With a second zipper in the other pant leg, the suit is easily removed even when the wearer is outside and is wearing heavy boots.

As another feature of the garment, a hood is attached to the neck portion and carries a face mask. When not desired for use, the face mask can be stored within the hood. In use, the mask is pulled down over the face and has neck straps which are wrapped around the neck under the chin and fastened to hold the mask in place.

These and other features of the invention result in a cold weather garment which is especially comfortable and convenient for winter sports.

The drawings illustrate the best mode presently contemplated by the inventor for carrying out the invention.

In the drawings:

FIG. 1 is a front view of the garment in use;

FIG. 2 is a partial back view of the garment in use;

FIG. 3 is an enlarged sectional view through a portion of the garment;

FIG. 4 is an enlarged view of the rear part of the garment with parts broken away to illustrate the cushion within;

FIG. 5 is an enlarged side view of a section of the garment at the seat and thigh portion, shown in the seated position; and

FIG. 6 is an enlarged partial view of the top portion of the garment showing the face mask thereof in a second position.

DESCRIPTION

Illustrated in the drawings is a one piece outerwear garment 1 having the usual body portion 2, arms 3, which are loose fitting as a raglan sleeve, and legs 4. The garment includes a hood 5 having an edge portion 6. The edge can be fabricated from a knit or similar material, and can include suitable elastic or tie strings, not shown, for tightening the hood over the head. The garment also has a number of side pockets 7, a sleeve pocket 8 and a waist belt 9. Hand warming slits 10 in the body portion 2 are disposed at the lower chest level on both sides and are suitably constructed to permit placing the hands through the garment to reach body heat.

As seen best in FIG. 2, the back of body portion 2 has a set of pleats 11, which are material folds permitting freedom of movement without unduly increasing the bulk of the garment. The pleats extend from edge portion 6 at an angle across the shoulder blades and from there to the location of waist belt 9.

Referring particularly to FIG. 3, the garment is fabricated of an outer layer 12 which is a wind breaker shell over the entire area of the garment. The layer 12 can be formed of nylon which is coated on the inside with an elastomeric resin such as polyurethane resin. This material provides protection from wind, rain and snow.

An inner layer or lining 13 of a porous fabric is stitched or otherwise attached to the inside of outer layer 12. Inner layer 13 is a full lining and is loosely fitted within the outer shell in order to leave space for air flow between the layers and thus prevent accumulation of moisture on the inside surface of the suit. The desired porosity and warmth is provided by a thick pile material, which for the best practice of the invention should be comprised of 55 to 75 percent Orlon and 25 to 45 percent Dynel and having approximately ¼-inch thickness. The pile faces the body of the wearer and is adhered to a close knit, yet porous, backing, preferably of knitted cotton fabric. Moisture will be adsorbed by the lining when fabricated from these materials and air flow through the porous lining, as well as within the space between the lining and the outer layer 12 will reduce moisture accumulation from perspiration.

Thus, air flow between the layers and the pile structure maintain the inside of the suit dry, while outer layer 12 protects the wearer from the external elements. Warmth and comfort are both provided thereby.

The flow of air between the layers 12 and 13 is increased further by a set of eyelets 14 disposed under arms 3 near body portion 2. Eyelets 14 are holes through outer layer 12 and permit a small amount of air between the layers to exhaust to the atmosphere. Water vapor from within the suit will also be exhausted through the eyelets to facilitate dryness within the suit.

A further feature of the invention permits the wearer to easily slip in and out of the garment, without having to remove boots or shoes. For this purpose, a full length zipper 15 extends from the neck at edge portion 6, down the front of body portion 2 toward one side, along the inside of one leg 4 to the corresponding ankle. The two layers of the garment are stitched together or otherwise suitably attached along both sides over the full length of the zipper, so that the zipper opens through the suit and not just the outer layer. The position of the zipper on the front and the inside of leg 4 makes it convenient for operation by either hand of the wearer.

A second zipper 16 opens through both layers of the garment on the other leg 4. Zipper 16 starts above the knee on the outside and extends to the ankle so that the leg can be split for slipping the suit over boots or shoes. With the two zippers opened, the wearer can conveniently pull half of the suit away from his body and one leg 4, slip out of arms 3, and then slip the entire suit over the other leg 4.

Now referring particularly to FIGS. 2, 4 and 5, extra comfort for extended periods of being seated is provided by an air cushion 17 built into the garment of the invention in the rear thigh and seat portion. Cushion 17 is disposed between layers 12 and 13 of the suit and has a seat section 18 and two legs 19, fitting within corresponding seat and leg portions of garment 1.

Air cushion 17 is formed of a plastic or rubber-like material, such as polyvinyl chloride, which is heat sealable to the polyurethane resin coating on outer layer 12. An integral back sheet 20 of cushion 17 comprises the entire back portion of seat section 18 as well as leg sections 19 and is heat sealed to the inside surface of outer layer 12.

To fit the contour of the thighs and seat and to provide a stable seat which doesn't cause the wearer to roll to one side or the other, a set of wide air tubes 21 sections narrow air tubes 22 extend from the lower half of the seat section 18 and the length of leg section 19 in spaced relation from each other. In the example shown in the drawings, a narrow tube 22 is disposed at the outside edge of each leg 19, a wide tube 21 is disposed along the longitudinal center line of each leg, and another narrow tube parallels the others adjacent to the inside edge of each leg. When filled with air, the narrow tubes expand further away from back sheet 20 than do the wider tubes so that the cushion fits the contour of the wearer's thighs and does not tend to bounce or roll him sideways when seated.

The tubes are fabricated by heat sealing strips of the plastic material of the front sheet of the cushion 17 to the back sheet 20 at appropriate areas between the tubes and adjacent the edges of the cushion as at reference numbers 23. A heat seal seam 24 across the upper part of the tubes in seat section 18 closes the upper ends of tubes 21 and 22 and permits the cushion to bend generally vertically upward from the seat to the small of the back when the wearer is seated.

Beneath the seam, generally centrally of the cushion, a broad seat air pocket 25 is disposed between the centermost air tubes 22 where it has heat sealed edges paralleling the tubes. The top edge of pocket 25 is closed by seam 24. Above seam 24 a series of broad, back air pockets 26 occupy the upper portion of the cushion and are separated by two heat seal seams 27 which extend vertically in the seated position from seam 24 to the top edge portion of the cushion. Back pockets 26 fit the contour of the lower back of a seated individual and extend to the small of the back. Seams 27 also provide freedom of movement when the cushion is inflated as well as deflated.

Air is supplied to the various pockets and tubes along the peripheral edge of the cushion. The outermost edge of back sheet 20 is heat sealed to the corresponding edge of the front sheet, leaving an air passageway 28 around the periphery of the cushion. To admit air into the tubes, the tubes are open to passageway 28 at their bottom. Seat pocket 25 also opens to the passageway 28 at its bottom and back pockets 26 open to the passageway 28 at their tops.

The cushion is inflated through a coiled tube 29 which connects through a neck 30 to air passageway 28. Tube 29 has an outlet 31 which receives a plug 32 for sealing the cushion. So that it does not hamper the activities of the wearer, tube 29 is fabricated from a resilient plastic or similar material and is coiled when in its normal state. The tube extends through outer layer 12 and into a side pocket 7 to a clamp 33. The clamp restricts tube 29 from passage back into the suit so that the tube is never lost between the layers 12 and 13. Side pocket 7 thus stores tube 29 in the coiled condition until the wearer wishes to inflate or deflate the cushion. When this is to be done, he extends the tube out of the side pocket, removes the plug and exhausts the already filled cushion or blows air into the cushion.

A further feature of the garment of the invention is a face mask 34 which is part of hood 5. Mask 34 is preferably made from a knit fabric shaped to stretch over the face, under the chin and within edge portion 6 of the hood. The mask has appropriate openings for the eyes, nose and mouth. In accordance with the invention, the top of the mask is stitched or otherwise attached to the hood, back of the collar portion over the forehead as indicated at 35, and when not in use can be conveniently drawn back under the hood to lie flat against the head.

In use, the mask is pulled over the chin and a pair of neck straps 36, which are integrally formed at the bottom of the mask, are criss-crossed and wrapped about the neck. A snap assembly 37, or other suitable fastening arrangement is disposed on the outer ends of the straps 36 and are snapped together at the back of the neck to securely hold the mask in place.

The garment of the invention, having the above features, is advantageously worn for such cold weather sports as snowmobiling. The wearer need not be indoors to remove or put on the suit, as by the above described use of zippers 15 and 16, he can do this without removing his boots or heavy shoes. Cushion 17 may be conveniently inflated or deflated when desired, by use of coiled tube 29, and therefore freedom of movement is not hampered even though the cushion is conveniently built in.

Various modes of carrying out the invention are contemplated as being within the scope of the following claims, which distinctly claim and particularly point out the subject matter which is regarded as the invention.

I claim:

1. A garment for outdoor wear in cold weather, comprising:
   - a trouser portion fabricated of an outer protective layer and an inner lining layer attached to the outer layer;
   - an air cushion located between the outer and inner layers at the seat of the trouser portion, the cushion including seat and leg sections corresponding to the seat and legs of said trouser portion, and the seat and leg sections having a plurality of wide air chambers and narrow air chambers extending lengthwise of the leg sections and spaced from each other to form a contour complementary to the thigh and seat contours of a wearer; and
   - tube means connected to the cushion and extending through one of the layers for inflating and deflating the cushion.

2. The garment of claim 1, wherein the wide air chambers extend lengthwise along the bottom portions of the respective leg sections and the narrow air chambers extend lengthwise along the side portions of the respective leg sections.

3. The garment of claim 1 and including a back section attached across the width of the seat and leg sections, the back section having a plurality of air pockets and having a lower seam between the seat section and the air pockets and a pair of longitudinal seams dividing the air pockets, whereby the back section folds upward to the small of the back when a wearer is seated.

4. The garment of claim 1, and including a pocket formed in the outer layer adjacent the trouser portion, and a sealable air tube connected through the outer layer to the air cushion, the air tube being in contracted form and located within the pocket and being extendible to be drawn out of the pocket for inflating and deflating the cushion.

5. A one-piece garment for clothing the full body of the wearer in cold weather, comprising:
   - a trouser portion and a body portion integrally formed of an outer protective layer and an inner lining layer attached to the outer layer;
   - the outer protective layer and inner lining layer being secured together at spaced locations to provide and air flow space therebetween;
   - the outer protective layer being substantially impervious to the penetration of water and moisture; and
   - the inner lining layer having a backing layer of porous material adjacent the outer layer, and including a pile fabric of substantial thickness adhered to the backing layer with the pile facing the inside of the garment.

6. The garment of claim 5 and including:

a full length seam closing the inner and outer layers together, the full seam extending along the front of the garment from the neck of the body portion lengthwise along the body portion and along the inside of one leg of the trouser portion to terminate at the ankle thereof;

a first full length zipper disposed along the length of the full length seam for opening and closing the garment;

a second leg seam closing the inner and outer layer together on the other leg of the trouser portion, the second leg seam extending from the knee of said other leg to the ankle thereof; and

a second zipper disposed along the length of the leg seam for opening and closing the leg portion of the garment.

7. The garment of claim **5**, wherein the outer layer includes an outer fabric section and an inner section bonded to said outer section and formed of an elastomeric resin, the backing layer is a close knit fabric, and the pile is fabricated from a synthetic organic fibrous material.

8. The garment of claim **5**, and including a hood having inner and outer layers integrally formed with the inner and outer layers of the body portion at the neck thereof; and a face mask attached to the hood, the mask alternatively fitting over the face of the wearer and folding back into the hood.

9. The garment of claim **5**, and including an inflatable air cushion fixed between the outer and inner layers at the seat of the trouser portion.

10. The garment of claim **9**, and including a hood integrally formed with the inner and outer layers of the body portion at the neck thereof; and a face mask attached within the hood, the mask alternatively fitting over the face of the wearer and folding back into the hood.

11. The garment of claim **8**, wherein one end of the mask is attached to the inner layer of the hood, said garment also including a pair of straps attached to the opposite end of the mask and having a length sufficient to wrap around the neck, and fastening means for fastening the strap together behind said neck.

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