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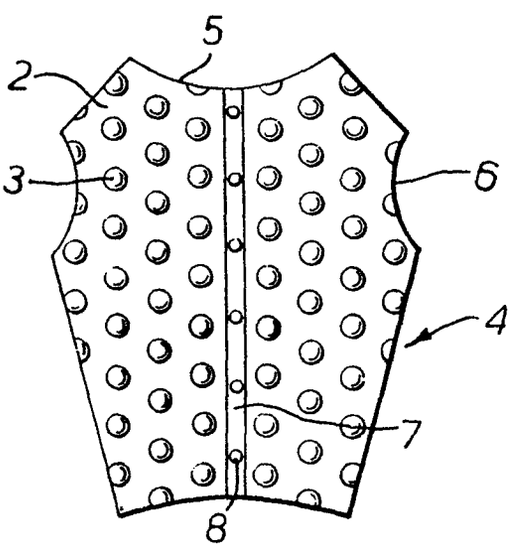
(54) Garment.

(57) There is disclosed a garment formed from, or including, one or more sheet of a plastics material, the or each sheet comprising a continuous layer provided on one side with a plurality of blisters which define pockets of a gas, the continuous layer in the garment being outside the blisters in the sheet. The garment is light in weight, is cheap to produce, has good thermally insulating properties, and has buoyant characteristics.



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GARMENT

This invention relates to a garment which may be worn as protection against adverse weather conditions or as a safety garment which confers buoyancy on a wearer immersed in water.

Garments to be worn in adverse weather conditions are already available, some types being "dry garments" of air-trapping fibres (e.g. down jackets or pullovers) which provide warmth, or "protective barrier garments" of a substantially impervious material (e.g. anoraks, leathers or mackintosh). These garments suffer from the disadvantage that, when they get wet, they become soggy, heavy and uncomfortable. Also, drying out such garments is a very slow process.

Another type of garment is of the "wet variety", referred to as wet suits, which consist of foam rubber suits comprising an integral outer wind-proofed, impervious layer. These systems work on the principle that when the wearer is immersed in water, an inner layer of the garment gets wet and the trapped water is heated up by the body. The warm water layer remains and consequently keeps the wearer warm. This system suffers from the disadvantage that

the garment is relatively heavy, not very comfortable to wear and inherently expensive to make.

According to the present invention there is provided a garment comprising one or more sheet of a plastics material, the or each sheet comprising a continuous layer provided on one side with a plurality of blisters which define pockets of a gas, the continuous layer in the garment being outside the blisters in the sheet.

The plastics material used to form the garment of the present invention may be, for example, of the type manufactured by Sealed Air Limited and marketed under the trade mark "AIRCAP". This product is an air bubble cushioning material commonly used to package delicate articles which are to be sent through the post. The material is very light, relatively cheap and comes in many different dimensions and designs. Typically,a bubble or blister may be 2.38mm in height and 7.94mm in diameter, or 4.76mm in height and 9.53mm in diameter, or 9.53mm in height and 25.4mm in diameter.

It is intended that the continuous layer of the garment is to be worn away from the body of the wearer; it has been found that having the blisters face the wearer is more comfortable than with the continuous layer facing inwards. Further, it is to be appreciated that having the blisters face inwards provides significantly more insulation than if they were to face outwards, as a larger volume of air (outside the blisters) is trapped between the wearer and the continuous outer layer. Having the blisters face the wearer provides the added advantage of a network of passages which allow vapour or perspiration to escape from the garment.

Being made of such a plastics material

as described above, a garment according to the present invention is considerably lighter than garments described in the prior art which confer comparable insulating properties.

An additional advantage derives from the water-repellent characteristics of a plastics material; a garment according to the present invention should not lose its insulation even when wet.

Preferably, the one or more sheet of the plastics material is joined at its/their edge regions by one or more of the following: heat-welding; an adhesive; and an adhesive tape.

The sheets which are to be joined may conveniently be heat-pressed from a large sheet of the plastics material. Heat-pressing in this way desirably seals any bubbles adjacent the edge regions.

In one embodiment of the present invention, the garment further comprises ventilation means. These ventilation means may comprise regions of perforations through the continuous layer of plastics material, between adjacent blisters.

In one embodiment of the present invention, the garment is a buoyancy aid. A buoyancy aid in accordance with the present invention has the advantage over some conventional buoyancy aids in that it is more flexible and comfortable to wear.

The garments of the present invention can be formed as, for instance, sleeveless or sleeved jackets, trousers, mittens, socks, hats, gaiters or puttees.

Preferably, the exterior of the garment is coloured. Therefore, garments can be made green or brown for camouflage purposes, or they may be brightly coloured, for example red,

orange or yellow, for use in sailing, mountaineering or walking; these bright colours are well recognized "safety colours".

The magnitude of the bubbles or blisters may vary in different regions of the garment. In this way, a garment could be made with a greater density of bubbles, or with larger bubbles, in the region of the garment to be worn adjacent to the chest of the wearer as compared to the part of the garment to be worn adjacent the back of the wearer. This arrangement would confer more buoyant characteristics to the region adjacent the chest of the wearer and would tend to float the wearer in an upright, face-out-of-the-water position. It would also be possible to make trousers which are less buoyant than the corresponding jacket; thus when the wearer is immersed in water, the legs of a wearer would not be forced up unduly relative to the head and torso region of the wearer.

Preferably, a garment according to the present invention will also include means for releasably fastening adjacent regions of the garment. The releasable fastening means may be a zip; a series of toggles and corresponding loops; a strip with a plurality of resilient hook members and strip with plurality of looped members, for example the commercially available product known under the trade mark "VELCRO" or "NYLOCK"; buttons and button holes; or a buckle.

A garment prepared in accordance with the present invention would be very useful for people working or travelling in rain, cold or windy weather, for example motor-cyclists, back-packers, climbers, steeplejacks, telephone-engineers, sailors, fishermen, or riggers; however, because of the nature of polyethylene, which crackles

as it moves, a garment according to the present invention may not be as useful to, for example, a film camera-crewman or an ornothologist.

The one or more sheet of plastics material may constitute the sole material over at least the majority of the garment.

However, to increase the resistance to wear of the garment, a layer of a wear-resistant material may be present externally of the one or more sheet of plastics material. The layer of wear-resistant material may be, but need not be, bonded to the sheet(s) of plastic material. The means for releasably fastening adjacent regions of the garment may be provided on the layer of wear-resistant material. The wear-resistant material could be formed of cotton, for example denim.

Alternatively, or in addition, a lining of a material comfortable to a wearer of the garment may be provided internally of the one or more sheet of plastics material.

In one embodiment of the garment of the present invention, the one or more sheet of plastics material is located in pockets defined by internal and external layers of the garment, whereby said plastics material constitutes an intermediate layer.

Edge regions of the garment may be provided with strengthening strips and there may be provided, in association with such strips, draw-strings to be used for reducing the size of apertures in the garment, such as arm-holes and leg-holes, either to make the garment fit more sealingly on a wearer or to make the garment more suitable for wearers of different size. The strengthening strips can be formed of a polyethylene and can be heat welded to the plastics material of the sheet(s). The strengthening strips can define

channels in which the draw-strings are located.

For a better understanding of the present invention, and to show how the same may be carried into effect, reference will now be made by way of example, to the accompanying drawings in which:

Figure 1 shows a cross-section through a typical "blister" plastics material which may be used in the present invention;

Figure 2 shows an oblique perspective of a part of a sheet of the plastics material shown in Figure 1;

Figure 3 shows one emboidment of a garment in accordance with the present invention; and

Figure 4 is a view of the front of another embodiment of a garment in accordance with the present invention.

Referring to Figures 1 and 2; a plastics material 1 has a continuous layer 2 provided on one side with a plurality of blisters 3.

Referring to Figure 3, a sleeveless jacket 4 formed from a plastics material as illustrated in Figures 1 and 2, comprises a neck hole 5, arm holes 6 and a releasable fastening means 7. The releasable fastening means 7 comprises buttons 8 which fit through corresponding button holes.

The garment 10 illustrated in Figure 4 is intended to provide buoyancy and thermal insulating properties for the trunk of the wearer. The garment, which can be opened and closed down its front, has a neck hole 11, right arm hole 12, left arm hole 13, right leg hole 14 and left leg hole 15.

The garment is formed of the blister plastic material illustrated in Figures 1 and 2 but, for clarity, the blisters are omitted in Figure 4. As with the garment of Figure 3, the blisters

face inwards in the garment of Figure 4.

Around each of the holes 11 to 15 are strengthening strips 16 to 20 respectively, which strips are formed of a polyethylene heat welded to edge regions of the blister plastic material. The strengthening strips 16 to 20 are provided with channels in which are located draw-strings (described in more detail below).

The left hand vertical front edge is provided with a strip of VELCRO (trade mark) 21 and the right hand vertical front edge is provided with both a strip of VELCRO intended to overlap and join with strip 21 and, outwardly, a strengthening strip 22 similar visually to strips 16 to 20.

The strip 16 locates a draw-string, the two end regions 23A, 23B of which can be drawn together and tied to provide a good fit around the neck.

Likewise the strips 17 and 18 locate respective draw-strings the two end regions 24A, 24B and 25A and 25B of which can be drawn together and tied.

The strips 19 and 20 are provided with respective draw-strings 26 and 27 which are secured at one end but are free at the other end to be drawn together to hold the lower front corners of the garment together.

Near the lower front corners are buckle parts 28 and 29 which are intended to cooperate with respective complementary buckle parts 30 and 31 of a buckle 32 provided at the free end of a flap 33 which, in use, is to pass below the seat of the wearer.

CLAIMS:

1. A garment comprising one or more sheet of a plastics material, the or each sheet comprising a continuous layer provided on one side with a plurality of blisters which define pockets of a gas, the continuous layer in the garment being outside the blisters in the sheet.

2. A garment according to Claim 1, wherein the one or more sheets is joined at its/their edge regions by one or more of the following: heat-welding; an adhesive; and an adhesive tape.

3. A garment according to Claim 1 or 2, which further comprises ventilation means, the ventilation means preferably comprising regions of perforations through the continuous layer of plastics material, between adjacent blisters.

4. A garment according to any preceding claim, and which is a buoyancy aid and/or is a thermally-insulating garment.

5. A garment according to any preceding claim, which is a sleeveless or sleeved jacket, a pair of trousers, a mitten, a sock, a hat, a gaiter or a puttee.

6. A garment according to any preceding claim, wherein the exterior of the garment is coloured.

7. A garment according to any preceding claim, wherein the magnitude of the blisters varies in different regions of the garment.

8. A garment according to any preceding claim, which also includes means for releasably fastening adjacent regions of the garment, the releasable fastening means preferably being a zip; a series of toggles and corresponding loops; a strip with a plurality of resilient hook members and a strip with a plurality of looped members; buttons and buttonholes; or a

buckle.

9. A garment according to any preceding claim, wherein the one or more sheet of plastics material constitutes the sole material over the majority of the garment.

10. A garment according to any one of Claims 1 to 8, wherein externally of the one or more sheet of plastics material is a layer of a wear-resistant material, preferably a cotton material, more preferably denim.

11. A garment according to any one of Claims 1 to 8 and 10, wherein internally of the one or more sheet of plastics material is a lining of a material comfortable to a wearer of the garment.

12. A garment according to any one of Claims 1 to 8, wherein the one or more sheet of plastics material is located in pockets defined by internal and external layers of the garment, whereby said plastics material constitutes an intermediate layer.

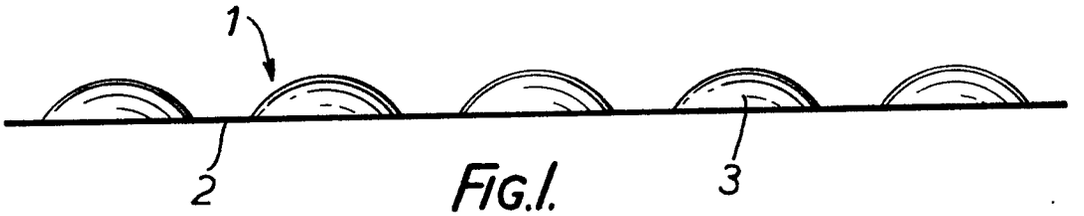

FIG.1.

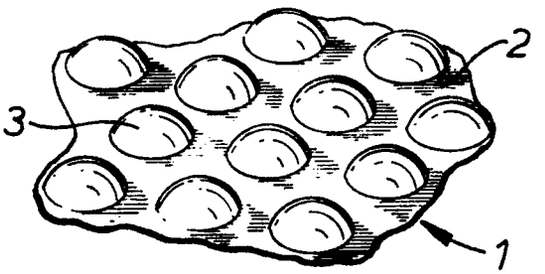

FIG.2.

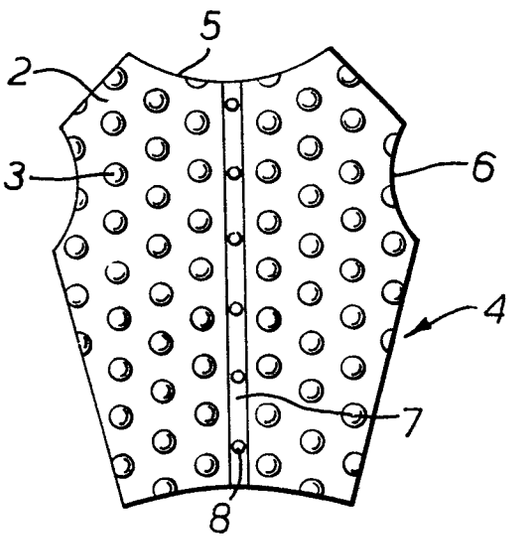

FIG.3.

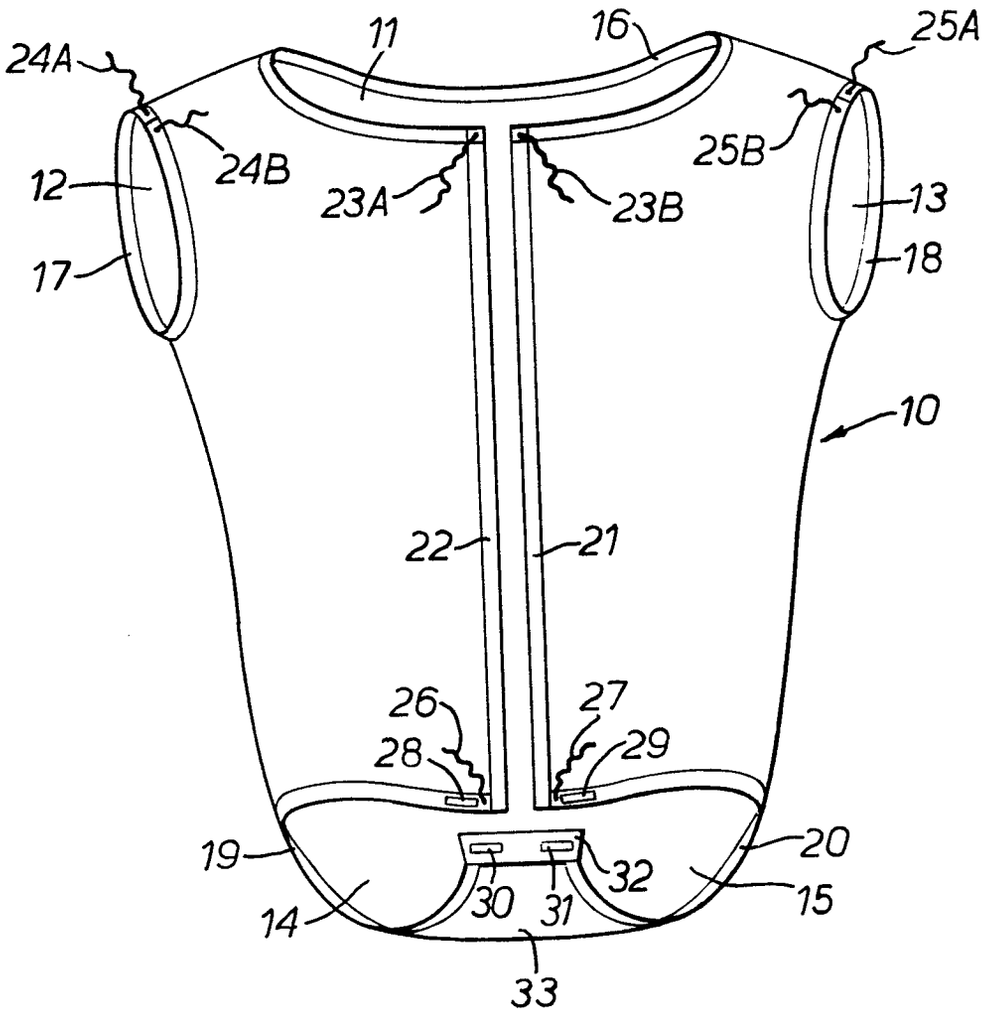
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FIG.4.