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3,213,465

RAINWEAR

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Fig. 1

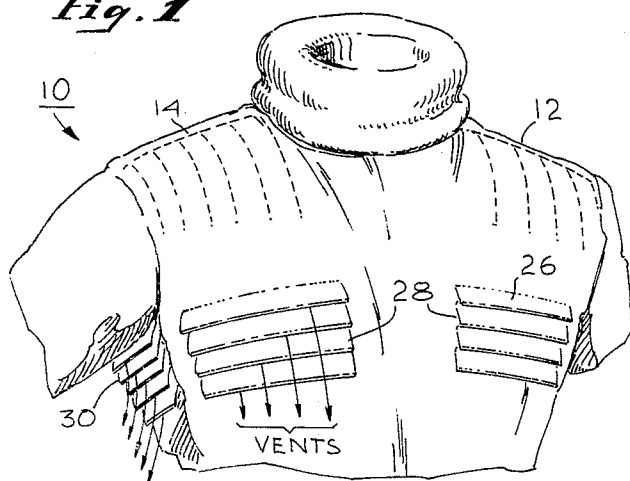


Fig. 2

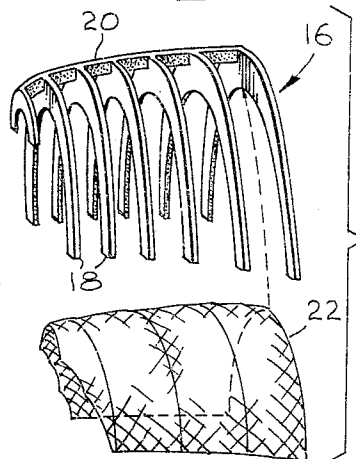


Fig. 3

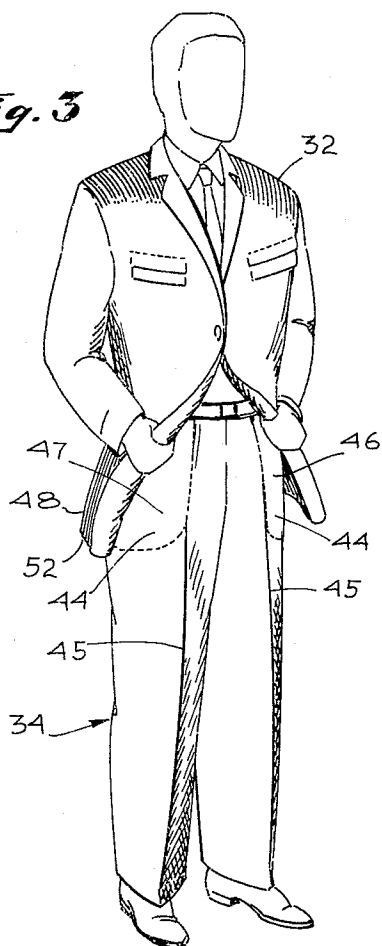


Fig. 4

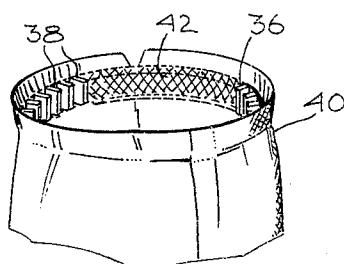


Fig. 5

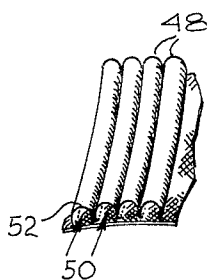
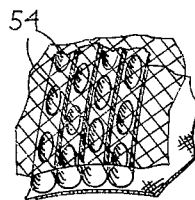


Fig. 6



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RAINWEAR

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7 Claims. (Cl. 2—87)

The present invention generally relates to improved rainwear, and particularly to dress rainwear having improved appearance and comfort.

Garments conventionally used as rainwear are subject to a number of deficiencies, which modern designs and construction have failed to satisfactorily overcome. The most common difficulty encountered with completely moisture proof types of rainwear is their lack of style and shape retention. Such rainwear is not initially attractive in appearance and tends to depreciate in appearance upon continued use. It becomes baggy and shapeless unless made of relatively heavy material. Such rainwear is limited in use to hats, boots and raincoats or so-called ponchos. It is characterized by a further failing, in that since it is moisture impervious, it is very uncomfortable to wear, i.e. it does not allow normal evaporation of body moisture to take place and accordingly the wearer becomes overheated. This is true even if the completely moisture proof rainwear is relatively thin. Such rainwear is usually provided with air holes, at the arm pits, for example, in raincoats, but these are wholly inadequate to overcome this deficiency. Thus, items primarily sold as rainwear and which use materials which are truly impermeable to moisture are subject to deficiencies both as to appearance and comfort. Such items are not suitable for long and continued use as apparel nor even temporary use as dress apparel and, accordingly, do not satisfy the need which arises on many occasions when a dress garment must present a satisfactory appearance but must be worn under conditions of heavy moisture.

Ordinary waterproofed outer garments of the so-called moisture-repellent type are not satisfactory because their water repellancy has limited effectiveness. When such garments are cleaned they must be treated to restore their moisture repellancy. Moreover, such garments inevitably wet through when exposed to heavy rain conditions and not only fail to protect the wearer but additionally become misshapen and unsightly in appearance. Use of such garments has mainly been limited to raincoats, hats and the like.

Accordingly, there exists a real need for a wide variety of rainwear which not only effectively protects the wearer from moisture over long periods of time without special reprocessing, but also provides a finished and highly attractive appearance and is comfortable during use. It is also highly desirable that such improved rainwear be capable of being utilized as finished dress wear, e.g. suits, dresses, sweaters and the like.

It is therefore an object of the present invention to provide improved types of rainwear.

Another object of the present invention is to provide improved dress rainwear.

It is a further object of the present invention to provide a water-impermeable garment construction which has attractive shape-retaining appearance and which is comfortable to wear, and a method of making the same.

It is another object of the present invention to provide improved dress rainwear capable of remaining water-impermeable during long-continued exposure to rain, which rainwear is further capable of being fabricated into the form of dress garments, such as suits, dresses, sweaters and the like having shape-retaining characteristics.

These and other objects of the present invention are

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realized by a dress rainwear construction utilizing shaped spacing members which are disposed to provide a finished outer appearance, but permit adequate circulation and venting of air within and/or under the garment so as to assure comfort of the wearer, even during long-continued use.

In a preferred example of this type of construction, pliant internal ribs are disposed in the principal shape-imparting support regions of upper and lower rainwear garments which are externally cut in contemporary fashion to provide the finished attractive appearance of conventional wearing apparel. In a suit jacket or sweater, for example, these internal supporting members may take the form of spaced ribs disposed along the jacket shoulders. In lower garments, such as pants and skirts, the internal spacing elements may take the form of pliant ribs disposed around a waistband.

Another feature of construction, in accordance with the invention, is the use of a composite woven fiber construction consisting of a blend of a large proportion of synthetic and natural fibers, so selected, blended and woven as to provide a superior combination of attractiveness and resistance to moisture. Further aspects of the construction, in accordance with the invention, relate to the manner in which superior ventilation and cooling may be provided to assure comfort for the wearer.

A better understanding of the invention may be had by reference to the following description, taken in conjunction with the accompanying drawings, of which:

FIG. 1 is a perspective view, partially broken away, of an example of a dress rainwear garment in accordance with the invention;

FIG. 2 is a fragmentary perspective view, partially exploded, of pliant internal members and associated retaining construction which may be employed in the arrangement illustrated in FIG. 1;

FIG. 3 is a perspective view of male dress rainwear apparel comprising dress pants and jacket, showing further details of construction in accordance with the invention;

FIG. 4 is a fragmentary perspective view, showing certain details of construction of the pants illustrated in FIG. 3;

FIG. 5 is a fragmentary perspective view of an alternate venting arrangement in accordance with the invention; and

FIG. 6 is a fragmentary perspective view of another alternative venting structure.

The dress rainwear in accordance with the invention may be provided in a large number of forms, including those illustrated in the accompanying figures. The illustrative arrangement depicted in FIG. 1 is in the form of a sports turtleneck sweater 10 of conventional overall appearance but of substantially improved utility, in that it is completely waterproof while still being comfortable, durable, inexpensive and of attractive appearance.

The sweater can be fabricated of any suitable waterproof or essentially moisture-impermeable material 12, such as one comprising a mixture of synthetic and natural fibers, for example, approximately 50% vinyon, a product of the American Viscose Company, and approximately 50% wool. Vinyon is a generic name for fiber formed of a long chain synthetic polymer composed of at least 80% by weight of vinyl chloride units ($-\text{CH}_2\text{CHCl}-$). This blend is preferred, although other blends and other materials may be employed. The vinyon fibers are long-lasting and substantially unaffected by moisture, while the minor proportion of wool provides some "breathing" and adequate control of the shape and draping characteristics of the material.

As shown in FIG. 1, the outer covering 12 of the sweater 10 is principally supported on the body of the wearer

at the shoulders 14 and would normally tend to become restricted around the shoulders. Since the material used is waterproof, it would normally severely reduce evaporation of moisture from the body in that region and would soon be uncomfortable to wear. Through the use of an intermediate layer comprising a flexible support and venting arrangement, in accordance with the invention, however, spacing is provided for adequate air circulation and, moreover, the sweater retains a pleasing configuration, even when subjected to heavy moisture conditions and long wear. For this purpose, a plurality of interconnected ribbed members 16 (more particularly shown in FIG. 2) are provided in sweater 10. Members 16 are fabricated of resilient but pliant material, such as polyethylene plastic, or the like. Members 16 have an inner configuration conforming generally to the shoulder of the user, and comprise curved depending members 18 spaced at selected points along an interconnecting spine member 20 which extends generally along the shoulder line, as shown in FIG. 2. The outer configuration of members 16 is such as to give sweater 10 a blocked or draped shoulder appearance as desired. An internal netting 22 of moisture-permeable, porous fabric or clothing material, e.g. cotton webbing, having an open weave is disposed as an inner layer or backing for the ribbed members 16 and is affixed at selected points to the inner side of outer covering 12 so as to hold ribbed members in position within sweater 10. The porous netting 22 thus maintains each of the ribs in position relative to the garment, although all of the ribs are free to move somewhat with the body of the user and without binding or causing discomfort. The spaced ribs 18 and 20 cooperate with outer covering 12 and inner webbing 22 to provide a plurality of air circulating passageways to maintain the wearer of sweater 10 in comfort.

On the breast region 26 of sweater 10 there are provided a plurality of flaps 28, as best seen in FIG. 1. Flaps 28 laterally extend and open downwardly and are disposed in overlapping relationship. Flaps 28 are fabricated of the outer covering material of the sweater 10 and conceal air vents in the outer covering. Accordingly, they provide an attractive appearance and also adequate air venting (and therefore comfort) without the danger of leakage of moisture into the sweater. Similar flaps 30 and vents are also included in the region of the sweater under the armpits.

Sweater 10 and similar dress rainwear of the invention can be readily and inexpensively fabricated by first assembling essentially moisture-impermeable outer covering into the desired size, shape and form, as by cutting, stitching, etc. The garment shape-retaining means, such as the ribbed members 16 can then be disposed adjacent the inner side of the outer covering, and secured in place by the backing material or webbing 22 forming the inner layer of the garment, webbing 22 being secured to the inner surface of the outer covering. The described flaps 28 and 30 may be secured to the outer covering 12 either before or after assembly of components 16 and 22 into the garment. So also may the associated vents (not shown) be provided in the outer covering 12.

The described sweater construction has a number of advantages. The sweater is rainproof, yet is held away from the body to allow air circulation and body moisture evaporation, while permitting full freedom of movement to the user. Moreover, the sweater is of permanent attractive appearance and maintains its shape. In addition, the ribbed shoulder construction may be adapted for each size and style of sweater so as to provide a natural styled shoulder line which is free of a bulky appearance. It is to be noted that the same constructional features may be utilized and applied in the suit jacket 32 of FIG. 3, as described in connection with the turtleneck sweater 10 of FIG. 1.

Utilizing a similar construction, pants 34 of a like preferred essentially moisture-impermeable clothing material may also be fabricated. Pants 34 are provided with an

internally ribbed waistband 36, as best seen in FIG. 4. Circumferentially disposed and vertically extending ribs 38 are spaced about the interior of the waistband 36 so as to permit a loose fit of pants 34. They are equally applicable to the waistband of a skirt (not shown) and provide adequate internal circulation of air. In this regard, ribs 38 may be fabricated of resilient, pliable, self-supporting polyethylene or other plastic material and may be positioned between outer covering 40 and an inner layer 42 of webbing material, and secured therein, as by connecting to layer 42. Alternatively, ribs 38 can be connected to outer covering 40 and inner layer 42 dispensed with. Furthermore, inasmuch as suit jacket 32 adequately covers the side regions 44 of the upper part 46 of pants 34, side regions 44 may be paneled of a porous, moisture-permeable clothing material, to aid circulation of air to the wearer, as best seen in FIG. 3. The inner margin of the side regions 44 may terminate at the crease or pleat lines 45 of the pants, shown in FIG. 3, facilitating permanent creasing or pleating of the pants. Relatively large pants pockets 47 can be provided in regions 44. Pants pockets (not shown) can also be provided in the seat areas of the pants of FIG. 3, and can be fabricated of moisture-permeable fabric, as can the associated overlying regions (not shown) normally covered by the jacket 32. Better wearing quality and comfort as well as increased utility can thereby be provided.

Air vents may be provided in forms additional to or in place of those illustrated in FIGS. 1 and 3. In this regard, decorative parallel abutting folds 48 formed from the outer covering 40 or formed from separate clothing material secured to the inner side of the outer covering material, as by an inner layer of webbing etc., may be provided, for example in jacket 32, with air passageways 50 therein and open lower ends 52 to facilitate air circulation through jacket 32. To increase such air circulation, folds 48 may have extending through the inner surfaces thereof a plurality of vents 54 as shown in FIG. 6. If desired, folds 48 can be backed with an inner layer comparable to layer 42, as indicated.

It will be further understood that the garment shape-retaining means in the dress rainwear of the invention can also be fabricated of the folds 48, in place of or in addition to the ribbed members 16. Such folds 48 can be formed from the outer covering of the garment or from separate cloth material or the like disposed as an intermediate or inner layer. In such instance, it is preferred to back the folds with an inner layer of moisture-permeable support material, as shown in FIG. 5, and to vent the folds to the inner layer, as previously described. Moreover, if the folds are formed from the outer covering, they can be interconnected adjacent the outer surfaces thereof so that the outer covering provides an essentially smooth and continuous surface of attractive appearance, such as is indicated in the shoulder region of jacket 32 in FIG. 3.

The folds can be incorporated during or after primary assembling of the outer covering into the desired size and shape for the dress rainwear. The backing, if any, can then be secured into position to provide the finished garment.

It will be understood that rainwear in the forms of caps or hats can also be fabricated to incorporate features of the invention. For example, a hat can be constructed to incorporate a ventilated sweatband generally similar to waistband 36 and including a plurality of spaced vertical ribs similar to ribs 38 of waistband 36. The ribs of the hat sweatband may be disposed between an outer preferably waterproof covering and an inner moisture-permeable lining or layer. However, in particular instances the inner layer may be dispensed with.

The garment shape-retaining means and air venting means can be incorporated into suitable apparel such as formal wear for improved appearance and comfort. Thus, for example, the ribbed members 16 can be used in male evening wear to develop and retain a desired tailored

appearance to the shoulder region of the formal wear. In addition, vents may be provided in concealing decoratively designed panels disposed on the garments in the breast regions 26 to assure adequate body ventilation during use of the wearing apparel under hot and/or moist conditions. Very lightweight clothing can be used in the construction while still assuring shape retention in accordance with the invention.

Accordingly, a method is provided whereby improved male and female wear can be constructed to ready-made or special tailor-made patterns and in various sizes to match or coordinate with other garments while providing a maximum of comfort, attractiveness, durability and resistance to the elements.

While there have been described above and illustrated in the figures various forms of dress rainwear which provide a high degree of protection against moisture, attractive permanent appearance and comfort for the wearer and a method of fabricating the same, it will be appreciated that the invention is not limited thereto. Accordingly, the invention should be considered to include all modifications, variations and alternative forms falling within the scope of the appended claims.

What is claimed is:

1. An article of dress rainwear comprising an outer covering of essentially moisture-impermeable clothing material and a layer of garment shape-retaining means connected to the inner side of said outer covering in at least principal garment shape-retaining areas, said layer comprising a plurality of spaced-apart, pliant upstanding and self-supporting ribbed members defining a plurality of air circulating passageways, each of said ribbed members being curved and terminating at one end thereof in the upper chest region of said rainwear and at the opposite end thereof in the upper back region of said rainwear.

2. An article of dress rainwear, comprising an outer covering of essentially moisture-impermeable clothing material, an intermediate layer of garment shape-retaining means connected to the inner side of said outer covering in at least principal garment shape-retaining areas, said intermediate layer comprising a plurality of arched spaced-apart pliant self-supporting and upstanding ribbed members defining a plurality of air circulating passageways extending from the upper chest region to the upper back region of said rainwear, each of said ribbed members terminating at one end thereof in the upper chest region of said rainwear and at the opposite end thereof in the upper back region of said rainwear, and an inner layer of air-permeable clothing material connected to the inner side of said garment shape-retaining means.

3. An article of dress rainwear, comprising an essentially continuous outer covering of essentially moisture-impermeable clothing material, a layer of garment shape-retaining means connected to said outer covering in at least principal garment shape-retaining areas, said garment shape-retaining layer comprising a plurality of spaced-apart pliant self-supporting and upstanding ribbed members defining a plurality of air circulating passageways, each of said ribbed members being arched to conform to the general curvature of the slope in the upper chest region, shoulder region and upper back region to the body outline of the human body, and being adapted to repose on said area of the human body, said ribbed members each terminating in one end thereof in the upper chest region of said rainwear and in the opposite end thereof in the upper back region of said rainwear and said ribbed

members being laterally spaced along the shoulder outline of the human body, and air venting means including a plurality of overlapped flaps of essentially moisture-impermeable clothing material connected to said outer covering and extending over air vents defined by said outer covering.

4. An article of dress rainwear, comprising an outer covering of essentially moisture-impermeable clothing material, an intermediate layer of garment shape-retaining means connected to the inner side of said outer covering in at least principal garment shape-retaining areas, said intermediate layer comprising a plurality of spaced-apart pliant self-supporting and upstanding ribbed members defining a plurality of air circulating passageways, each of said ribbed members comprising an arch in said plurality of ribbed members being adapted to conform adjacent the inner surface line of said arch with the upper shoulder region, upper chest region and upper back region of the human body whereby said passageways extend between said upper chest region and said upper back region across the shoulder, and a laterally extending spine interconnecting a plurality of said ribbed members adjacent the top midline thereof and adapted to conform to the top shoulder outline of the human body in each shoulder region of said dress rainwear, whereby each said shoulder region is provided with a shape-retaining and air-circulating means, and an inner layer of air-permeable clothing material connected to the inner side of said garment shape-retaining means, said article also including a plurality of partially overlapped flaps of essentially moisture-impermeable clothing material connected to said outer covering and extending over air vents defined by said outer covering.

5. The article of dress rainwear substantially as set forth in claim 1 wherein said outer covering is waterproof and comprises synthetic plastic containing clothing material and wherein said ribbed members comprise polyethylene plastic.

6. The article of dress rainwear substantially as set forth in claim 2 wherein said outer covering is waterproof and comprises synthetic plastic containing clothing material and wherein said ribbed members comprise polyethylene plastic.

7. The article of dress rainwear substantially as set forth in claim 4 wherein said outer covering is waterproof and comprises synthetic plastic containing clothing material and wherein said ribbed members comprise polyethylene plastic.

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