Sept. 28, 1948. J. O. GANTNER, JR 2,450,085

SWIMMING SUIT

Filed Feb. 24, 1947

Fig-1

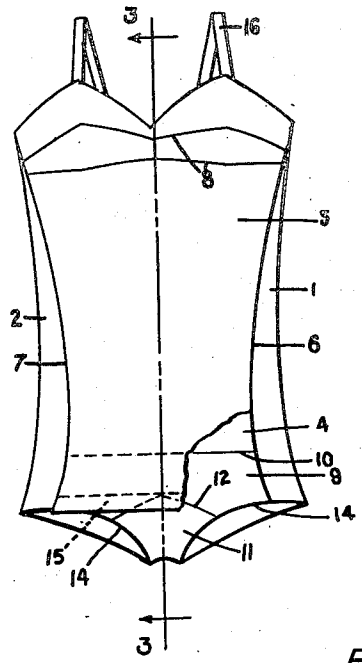


Fig-2

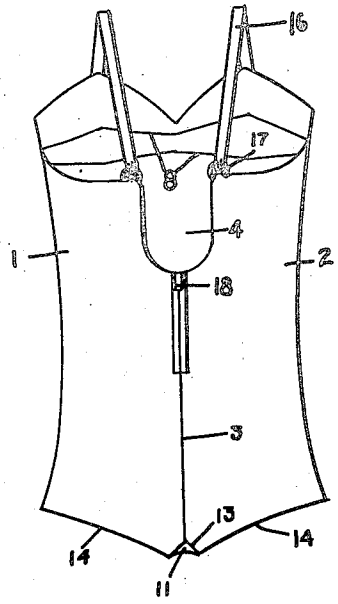
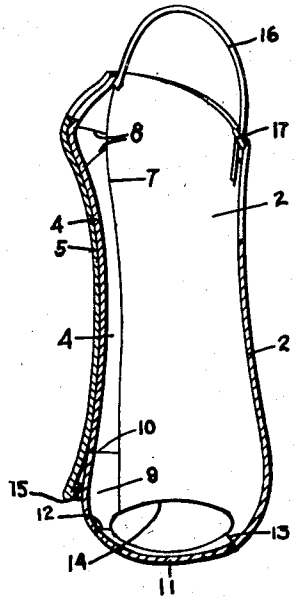


Fig-3



INVENTOR
JOHN O. GANTNER, JR
By Bayless, Mohler & Buckley
ATTORNEYS

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SWIMMING SUIT

John O. Gantner, Jr., San Francisco, Calif.

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3 Claims. (Cl. 2—67)

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This invention relates to swimming suits and more particularly to the structure of a suit having a panel arrangement.

Manufacturers have recently been producing and marketing a variety of costumes and particularly swimming wear from various materials other than those heretofore commonly employed. These materials have been chosen largely because of their pleasing appearance or durability and often do not afford certain advantages possessed by suits made from the conventional types of materials. One important disadvantage of such materials is their inability to permit proper circulation of air past the body of the wearer or to absorb water or perspiration. Another is that the colors of such materials are often subject to color fatigue (i. e., they lose their power to rectify invisible light, or that portion of the day light with rays of wave-lengths less than that of the visible spectrum, into visible light) after long exposure to sunlight. It is these disadvantages that the present invention is designed to overcome, in addition to the production of swimwear of extremely pleasant and attractive appearance.

Thus, one of the objects of the invention is a swimming suit having a double thickness of material in certain areas, the inner of which is porous and loosely woven.

Another object of the invention is a swimming suit having one or more panels of a luminescent, fluorescent or phosphorescent material.

A further object of the invention is a swimming suit having a panel of relatively nonabsorbent or impervious luminescent material overlying a relatively porous panel.

Still another object of the invention is a swimming suit having a luminescent portion which suit is inexpensive to manufacture and which provides an attractive and striking appearance.

A further object of the invention is to provide a swimming garment having increased visibility in and out of the water and a resulting increased safety factor. By the use of a fluorescent material as a substantial part of the garment, ultraviolet light rays received by the material are converted into visible light, with the result that the converted rays are given off by the material as added illumination. Hence, the visibility of the garment is greatly increased as compared to surrounding bodies or materials, with the result that a person wearing the suit may be more readily seen, in and out of the water, than would be the case with a person wearing a bathing suit made of conventional materials.

A yet further object of the invention is a swimming suit having a panel of material subject to a higher rate of color fatigue than the remaining portion of the suit, said panel being positioned so that the remainder of the suit is subject to the maximum exposure to sunlight.

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And yet another object of the invention is a swimming suit having exposed panels of contrasting colors that are adapted to fade at different rates under the same light and which panels are so arranged in the suit as to fade to the same degree under normal use of the swimming suit whereby the suit will maintain its pleasing appearance insofar as the colors are concerned.

And yet an even further object of the invention is a swimming suit of a relatively luminescent material having an underlying porous layer of material next to the skin of the wearer.

In the drawings:

Fig. 1 is a front elevation of one form of a swimming suit embodying the invention.

Fig. 2 is a back elevation of the suit shown in Fig. 1.

Fig. 3 is a sectional view of the suit along the line 3—3 of Fig. 1.

There are a variety of ways in which the present invention may be utilized and in which both its artistic and structural features are of importance. These cannot all be described in detail herein, and it will be sufficient to describe the preferred forms from which others will be suggested and obvious to those skilled in the art.

In instances where an outer luminescent panel is of air and water impervious material and is used over an inner layer, the innermost layer may be inexpensive and loosely woven and secured at one or more of its extremities to the outer layer. This enables the skin to breathe and promotes the comfort of the wearer.

Obviously, if desired, the complete suit could be made of the luminescent material but it would be subject to much color fatigue, and would be expensive, and would not permit free circulation of air over the skin. It would feel clammy and would restrict the activity of the wearer. The panel construction, by the use of contrasting colors for adjacent portions, also makes possible a more attractive garment and gives it a striking appearance. The desirability of positioning the panel in the front as shown in the drawings, has already been explained.

As has been described above, there are several ways in which the present invention may be utilized. The particular artistic design of the suit shown in the drawings is a preferred form but

the invention is not limited to the details thereon shown.

In the drawings, the suit is shown to comprise a back portion comprised of complementary panels 1, 2, cut from some material such as woven cloth, conventionally used in swim suit construction. These portions are sewn together along a seam, as at 3, and extend around the sides of the wearer in the region of the waist and hips. The front of the suit is formed of an underlying panel 4 of similar material, although, since it is covered by a second panel 5, panel 4 may be cut from inexpensive cloth. The overlying panel 5, of generally the same shape, is formed of luminescent material, preferably of a color contrasting with panels 1, 2. Panels 4, 5 are joined to the edges of panels 1, 2 along seams 6, 7, as can be seen in Fig. 1.

The upper portions of panels 4, 5 are cut and formed to cover the breasts of the wearer, which shaping and forming may be accomplished in conventional fashion by the use of properly shaped pieces joined along seams, as at 8. The lower edge of panel 4, particularly if it is cut from some material different than back panels 1, 2 is joined to an abdomen covering panel 9 (of the same material as panels 1, 2) along seam 10, above the lower edge of panel 5. The edges of panel 9 are joined to back panels 1, 2 along extensions of seams 6, 7.

The lower edge of abdomen panel 9 is joined to a crotch panel 11 along a slanting seam 12, which latter panel is designed to extend through the crotch and is joined at its opposite end to the lower edge of back panels 1, 2 along a second slanting seam 13, as can be seen in Fig. 2. Back panels 1, 2, abdomen panel 9 and crotch panel 11 are, of course, all conventionally cut and shaped to form leg openings, as at 14.

The overlying luminescent panel 5 is secured by sewing to panel 4 along its upper edge along the breast contours, which rise somewhat above the top edge of back panels 1, 2 as can be seen in Fig. 2. The lower edge of panel 5 is free and unattached to permit circulation of air and water between panels 4, 5. Preferably, panel 5 is folded back, up and under itself for a short distance, as at 15, and thus effectively forms a skirt to present a more modest appearance of the wearer. An additional feature of this construction is gained from the fact that the material of panel 5 may often be relatively inelastic and thus vertical stretching of panel 4 is permitted without injury to the suit while adding to the comfort of the wearer.

The suit may be finished in a conventional manner. In the drawings this is shown to comprise a pair of shoulder straps 16, extending from the upper edges of panels 4, 5 to the upper edges of back panels 1, 2 where they are made adjustable by attachment to a pair of rings 17, attached to the back panels. Conventional closure means, such as a zipper fastener 18, may be used along the upper parts of seam 3 to permit the suit to be put on and taken off more easily.

The suit construction herein described is thus seen to provide a considerable number of advantages, both structural and artistic.

The use of a panel of some type of luminescent material, contrasting in color with other portions of the suit, gives it a striking and brilliant appearance both in and out of the water. The increased brilliance of the material gives to the garment an increased safety factor and makes the wearer more visible than would be the case with a person wearing a suit of conventional materials. Hence, the rescue of a drowning person is greatly facilitated, since his or her whereabouts in the water may be determined more readily. Ultra-violet rays penetrate the water substantially from the zenith, on lines normal to the surface of the water and are transmitted through the water more readily than visible light rays. The ultra-violet light striking the fluorescent material of the garment, beneath the surface of the water is converted into visible light, with the result that the fluorescent material glows and is brightly illuminated, so that the whereabouts of the wearer may be readily determined. The positioning of the luminescent panel as shown in the drawings materially reduces the color fatigue since such area receives relatively little direct exposure and, over a period of time, will be found to fade to approximately the same degree as the remaining panel. And the use of the material in a panel rather than throughout the suit permits freedom of movement and circulation of air and water to all parts of the body of the wearer; and such circulation is permitted to take place directly through the underlying layer, rather than around the edges of the luminescent layer. The panel construction also adds considerably to the life of the suit in that it permits the wearer to protect the frontal panel from the sun during the greater portion of the sun bathing period.

The manufacture of swimming suits of contrasting colors and materials is highly desirable from an aesthetic viewpoint, and the use of luminescent materials in swimming suits enables the accomplishment of effects that are impossible by any other means. Such materials in themselves, when used in combination with conventional materials provide pleasing contrasts, but it is in the field of color where they excel. However, luminescent colors are relatively fugitive compared with the colors employed for dying conventional materials, and for that reason there has been a tendency to avoid their use.

The present invention overcomes the above objection to the use of luminescent materials by forming the design so that the relatively fast fading colored luminescent material is positioned on the suit inasmuch as the wearer in practically every instance will face the sun for an appreciably smaller length of time than he or she will do the opposite. It has been discovered that by this construction, a swimming suit having a luminescent colored material in combination with conventional colored material will actually fade to substantially the same degree whereby the suit will maintain its attractive color harmony and consequently an extended life from the standpoint of its appearance, which, in the final analysis, determines life of a suit, rather than its physical wearing characteristics.

I claim:

1. A swimming garment having increased visibility in and out of the water and a resulting increased safety factor, comprised of a fabric of fluorescent material extending at least substantially from side to side of the garment and being capable of converting ultra-violet light received thereby into visible light and giving off the same as added illumination.

2. A swimming garment having increased visibility in and out of the water and a resulting increased safety factor comprising a front panel and side and back portions, the front panel being comprised of a fabric of fluorescent material capable of converting ultra-violet light received

thereby into visible light and giving off the same as added illumination.

3. A swimming garment having increased visibility in and out of the water and a resulting increased safety factor comprising a colored front panel and colored side and back portions, the front panel being comprised of a fabric of fluorescent material capable of converting ultraviolet light received thereby into visible light, and giving off the same as added illumination, the side and back portions being of a color more fast to light than the fluorescent material of said front panel.

JOHN O. GANTNER, JR.

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