July 12, 1932. R. H. DILLS 1,867,445

SWIMMING SUIT

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Fig. 1

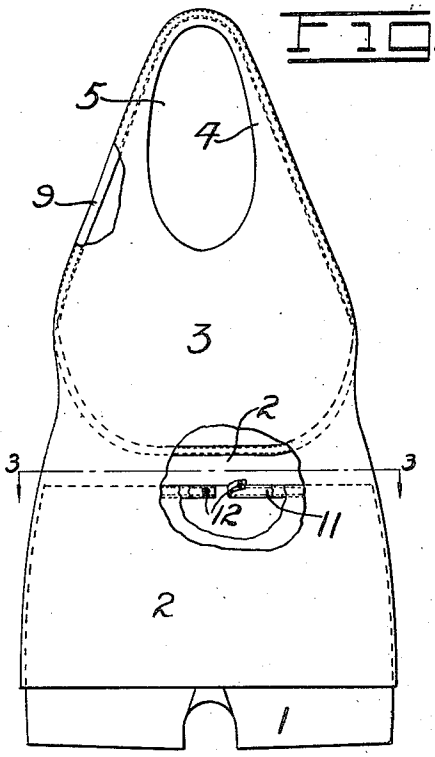


Fig. 2

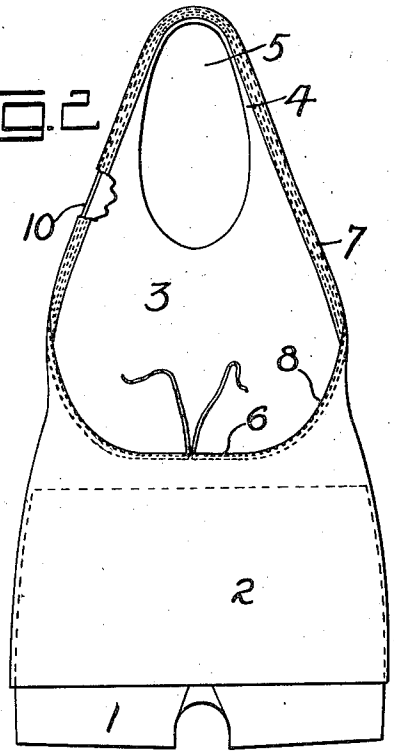
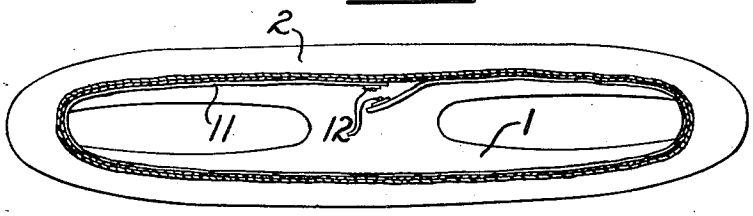


Fig. 3



Inventor

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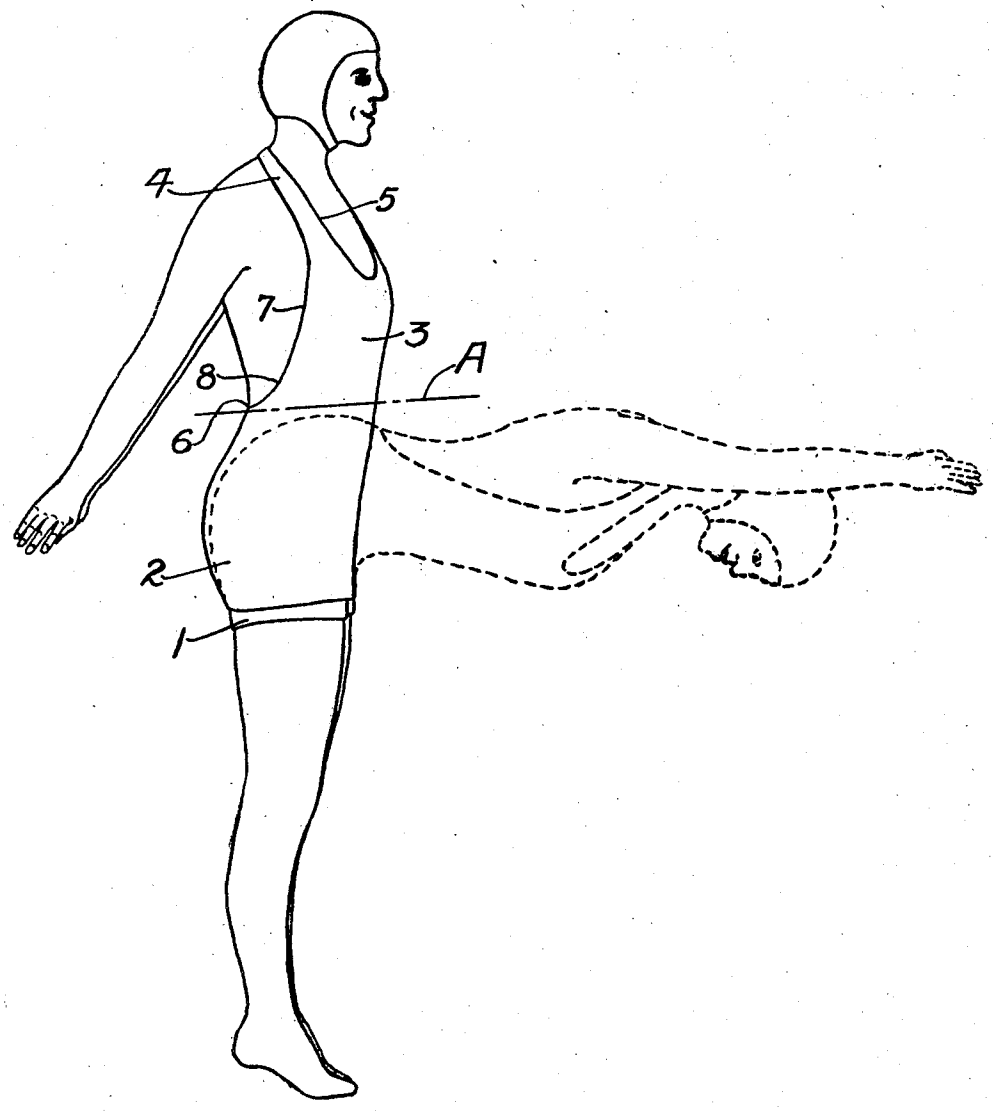
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FIG. 4



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Patented July 12, 1932 1,867,445

UNITED STATES PATENT OFFICE

REUBEN H. DILLS, OF SEATTLE, WASHINGTON

SWIMMING SUIT

Application filed March 6, 1929. Serial No. 344,657.

My invention is concerned with a swimming suit, and has as one of its chief objects to give the swimmer the utmost freedom of play of the back and shoulder muscles, which, with the leg muscles, are chiefly used in swimming, and to permit exposure of the body, as much as possible, to the beneficial rays of the sun.

A further object is the provision in a suit, wherein the back is uncovered, of means insuring that the upper portion of the suit shall cling closely to the wearer about its edges.

A further object is the provision of a design of swimming suit which need be made up in only a few sizes, and which is adaptable to fit persons of considerably different build without change or alteration, and without discomfort to the wearer, thus eliminating the necessity of the shopkeeper carrying a large assortment of sizes in stock.

It is a further object to devise such a suit wherein the edges of the upper portion of the garment may be made to cling tightly to the wearer without discomfort or cramping, to eliminate catching and dragging water while swimming, and in such a way that the suit will still fit persons of differing build and size without alteration.

Other objects may be ascertained by a study of the drawings, specification, and claims comprising this application.

My invention comprises the novel swimming suit and the novel construction and arrangement of the several parts thereof, as shown in the accompanying drawings, described in the specification, and as will be particularly defined by the claims which terminate the same.

In the accompanying drawings I have shown my invention embodied in a style of suit which is now preferred by me, but it will be borne in mind that the principles of my invention are adaptable to a considerable variety of styles and forms, and consequently I do not desire to limit myself to this particular style or arrangement, or other than as will be made clear from a study of this specification and the claims which terminate the same.

Figure 1 is a front elevation of such a suit, parts being broken away.

Figure 2 is a rear elevation of the same.

Figure 3 is a transverse section thereof on the line 3—3 of Figure 1.

Figure 4 is an elevation of the suit, seen from the side, as it would appear upon a wearer.

The arrangement of the lower portion of the suit is of little importance, so far as my invention is concerned, and consequently the suit may be formed with trunks only, omitting the conventional skirt, or it may have such a skirt. It may be adapted to the two-piece idea, the trunks being formed separate, and the upper portion having depending therefrom a crotch portion. These I consider variations of style, and my invention is adaptable to all such, though preferably the suit should include a crotch portion, by means of which the lower part of the upper portion is held down. Accordingly, in this specification, the designation "trunks" is to be understood as meaning any of the arrangements indicated in this paragraph.

In swimming, and especially in speed swimming, the muscles chiefly used for propulsion are the back, arm, and shoulder muscles. The ordinary suit having arm loops, places all of the drag of the suit and its resistance to longitudinal stretching, upon the shoulders, and to this extent cramps the swimmer, and impedes the freedom of muscle play which is desirable. My suit is so designed that the support of the upper portion of the suit may be wholly over the neck, the muscles of which are not brought into use, and all of the shoulder and back muscles are left free and uncovered, so that they may have the freest play possible. At the same time, for the sake of modesty, the suit should cling closely to the wearer in front, and it is designed thus to accomplish these two objects, that is, to leave the important muscles free, and to sufficiently cover the front of the wearer in all positions. Further, the lines of the suit are so designed that it is held closely to the wearer in the rear, so that no

water can enter to drag and hold back the swimmer.

The trunks, then, or more correctly speaking, the lower portion of the garment, is indicated at 1 and 2 respectively, the numeral 1 indicating trunks and the numeral 2 the conventional skirt portion. The upper portion, generally designated by the numeral 3, may be made continuous with either the skirt or the trunks, or is in some manner joined to one or the other so as to form an upward continuation thereof. From the front the suit may appear as the ordinary suit, including straps 4, which extend over the shoulders of the wearer. These straps, however, preferably do not extend again down the back, but are united, either permanently or by some fastening means, behind the neck of the wearer, so as to form a band which encircles the neck, the neck being slipped through the loop or opening 5 defined by this band and the edge of the upper portion 3.

The lower portion, 2 or 1, extends upward generally to the waist of the wearer. It may be considered to terminate at about the dot and dash line A of Figure 4, which corresponds approximately to the waistline of the wearer. However, it is immaterial that the lower portion may stop little short of this line or extend a little thereabove, and the line is shown chiefly as a line of reference to distinguish the lower portion from the upper portion of the garment. Thus, in the back the upper edge of the lower portion may form the upper edge of the garment, and coincides approximately with the location of the line A. This edge 6 defines the uppermost edge of the garment in the back, except for the band 4 which extends around the neck of the wearer. The line 6 continues for a greater or lesser distance across the back at the waist, and is then joined with the side edges 7 of the upper portion 3 of the garment. These side edges 7 form a continuation of the bands 4, and extend generally downward at the sides of the wearer, under the arm pits, to a junction with the edge 6 of the lower portion. Generally, the edge 7 swings somewhat rearwardly after passing in front of the arms and under the arm pits, and joins the edge 6 somewhat to the rear of the wearer, more or less close to the middle of the back. This rearward swing is indicated at 8.

It will now be evident that the front of the suit is like an ordinary suit in appearance, but that its side edge continues down from the neck encircling band 4, over the shoulders, in front of the arms, and thence downward under the arm pits, swinging rearwardly to form a continuous edge including the waist portion of the lower part of the garment, somewhere adjacent the middle of the back. Such suits are generally made of knit material, which is more or less elastic and which would be inclined to sag, but with the construction shown I have found that when the wearer bends, as is indicated in dotted lines in Figure 4, the length of the edge 7—8 (from the middle of the back to the front of the shoulders) has a tendency to extend, and consequently there is a stretching action from the neck to the middle of the back, which causes this edge to cling more tightly to the wearer, and consequently to prevent the suit from falling away from the front of the wearer. It will naturally assume such a position when the wearer is in upright position.

However, to make the suit conform more readily to persons of different build without change of size or adjustment, it may be desirable to provide some tensioning means in the edge which defines the back opening. This may take a variety of forms. The marginal seam may be sufficient in itself. It may be formed by including a piece of non-elastic webbing, as indicated at 9 in Figure 1, this lying in the edge and usually included in the seam. It may be provided by a piece or pieces of elastic similarly positioned and supported, or a piece of elastic webbing behind the neck, or a draw-string 10, as indicated in Figure 2, may be employed, this being threaded through a continuous marginal seam, or being otherwise secured about the edge of the back opening.

To further assist in maintaining the suit clinging to the wearer, especially when stooping, a waist belt 11, as is best seen in Figures 1 and 3, may be included in the suit or secured at about the upper margin of the lower portion thereof, this being normally provided with fasteners, as indicated at 12. Thus, when the suit is put on these fasteners may be snapped shut, or otherwise secured, and the waist portion of the suit will then cling tightly at all times, assisting in holding the front of the suit to the wearer. It will thus be seen that the retaining means, both at the waist and about the margin of the back opening, in effect depart from a common point at the middle of the back, the one going about the waist and the other following the margin of the back opening. The suit's primary support is about the neck, and secondarily about the waist, and its edges are tensioned by their function as supports, yet without any cramping or hindrance.

What I claim as my invention is:

1. A swimming suit constructed of knit material including a lower pants portion extending substantially as high as the wearer's waist, and an upper shirt portion joined thereto and having its edges extending generally upward from the waist, below the armpits, to the shoulders of the wearer, and passing in front of the arms, and means passing in front of the shoulders and behind the neck for supporting the uppermost portion of the garment, the side edges of the up-

per portion, from shoulder to waist, including tensioning means, whereby these edges are made to cling tightly to the wearer in all positions.

2. A swimming suit constructed of knit material including a lower pants portion extending substantially as high as the wearer's waist, and an upper shirt portion joined thereto and having its edges extending generally upward from the waist, below the armpits, to the shoulders of the wearer, and passing in front of the arms, and integral supporting straps extending in front of the shoulders and behind the neck, being joined thereat, and having incorporated therein two tensioning means, one extending about the wearer's waist, and the other lying in the side edges of the upper part of the garment, departing from the vicinity of the waist line, at the back, and extending in front of the arms, in front of the shoulders, and behind the neck.

3. A swimming suit constructed of knit material including a lower pants portion extending substantially as high as the wearer's waist, and an upper shirt portion joined thereto and having its edges extending generally upward from the waist, below the armpits, to the shoulders of the wearer, and passing in front of the arms, and integral supporting straps extending in front of the shoulders and behind the neck, being joined thereat, and said edges and supporting straps having a marginal seam forming a closed loop, and an elastic member lying in said marginal seam.

4. A swimming suit constructed of knit material including a lower pants portion extending substantially as high as the wearer's waist, and an upper shirt portion joined thereto and having its edges extending generally upward from the waist, below the armpits, to the shoulders of the wearer, and passing in front of the arms, and integral supporting straps extending in front of the shoulders and behind the neck, being joined thereat, and said edges and supporting straps having a marginal seam forming a closed loop, a draw string member lying in said marginal seam.

Signed at Seattle, Washington, this 14th day of February, 1929.

REUBEN H. DILLS.