June 28, 1966 E. J. RADEMACHER 3,257,673

SWIMMING GLOVE

Filed April 20, 1964

Fig. 1

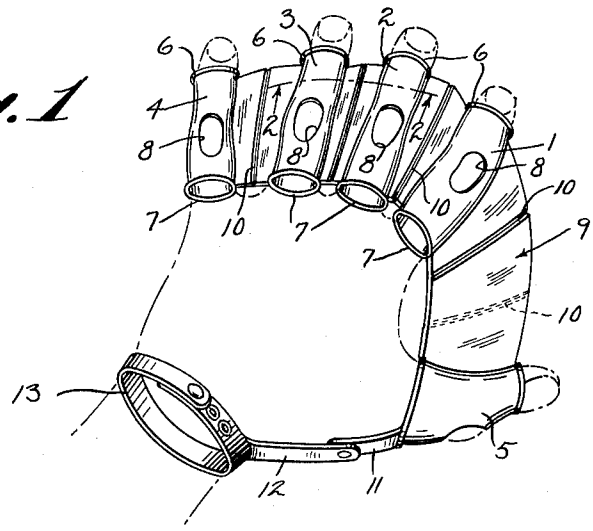



Fig. 2

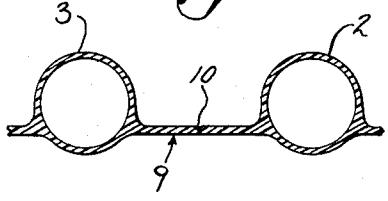



Fig. 3

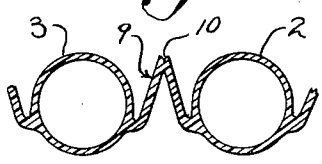



Fig. 4

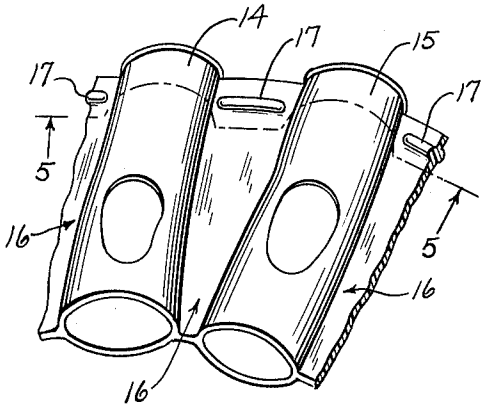



Fig. 5

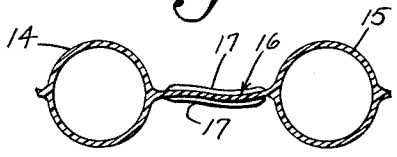
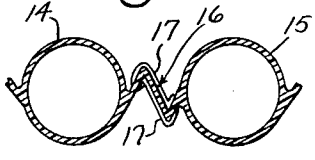



Fig. 6




INVENTOR
ERWIN J. RADEMACHER

BY

ATTORNEY

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3,257,673

# SWIMMING GLOVE

Erwin J. Rademacher, 8401 Jackson Park Blvd., Milwaukee, Wis. 53226

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1 Claim. (Cl. 9—308)

This invention relates to a glove for swimming that provides webbing between the fingers for controlling one's movement through water.

The enjoyment of water sports has been extended, in recent years, to sub-surface swimming and faster locomotion by popularization of swim fins and similar equipment. Such fins, usually attached to the swimmer's feet, increase the surface area against which reaction can be had with the water, with the result that the swimmer can easily propel himself at faster speeds, and thereby increase the sense of enjoyment in surface swimming, and provide for greater distances in sub-surface swimming, as in skin diving. The present invention furnishes webbed gloves for the hands, to thereby increase total fin area for further improving the ability to propel oneself. The provision of a webbed glove will not, however, be gratifying if finger dexterity is sacrificed to the extent that freedom of usage of one's hands is curtailed to more than offset any gains derived from the webbing.

To provide an effective glove the invention, in the preferred embodiments shown, eliminates a facing over the palm and a backing across the rear of the hand. It constitutes fingers joined through webbing, and a wrist band aids in retaining the device on the hand. There is a minimal effect upon finger dexterity, and a particular feature is a webbing that collapses between the fingers, as the fingers are brought toward one another, to not interfere with grasping action at the front of the hand.

It is an object of the present invention to provide an improved swimming glove with inter-finger webbing to improve locomotion.

It is another object to provide a swimming glove that will not materially adversely affect finger dexterity.

It is another object to provide a swimming glove that can be manufactured efficiently.

It is a still further object to provide a swimming glove of elastic material in which the fingers closely conform to the user's hand.

The foregoing and other objects and advantages will appear from the description to follow. In the description reference is made to the accompanying drawing which forms a part hereof. The drawing and description show by way of illustration specific embodiments in sufficient detail to enable those skilled in the art to practice the invention, and it is understood that other embodiments and forms may be utilized. Hence, the description is not to be taken in a limiting sense, and for a determination of the scope of the invention reference is made to the appended claims.

In the drawing:

FIG. 1 is a view in perspective of a swimming glove embodying the invention,

FIG. 2 is a view in cross section of a part of the glove of FIG. 1 taken in the plane 2—2,

FIG. 3 is a view in cross section of that part of the glove shown in FIG. 2 with the fingers retracted toward one another,

FIG. 4 is a fragmentary view in perspective of another embodiment of the invention,

FIG. 5 is a view in cross section of the embodiment of FIG. 4 viewed in the plane 5—5, and

FIG. 6 is a view in cross section of that part of the glove shown in FIG. 5 with the fingers retracted toward one another.



Referring now to FIG. 1, a glove has a full set of tubular fingers comprising the index finger 1, the second finger 2, third finger 3 and little finger 4 together with a thumb 5. Each is preferably of an elastic rubber of thin section, to closely conform with the wearer's hand. Each of the fingers 1–4 and thumb 5 are open at the outer end to allow the finger and thumb pads to protrude, whereby the sense of feel and touch is not masked. To lend strength to each finger 1–4 and the thumb 5 a bead 6 is formed at the outer end of each, and a bead 7 is formed at the inner end of each. The inner beads 7, in particular, fit tight around the base of the wearer's fingers and each restricts the inner end of the respective finger 1–4, or thumb 5, to a diameter less than the inner knuckle, whereby the glove remains in position at all times. Each finger 1–4 and the thumb 5 can also be slightly tapered, if desired, to facilitate putting on and removing the glove, and also as shown in FIG. 1 each finger 1–4 and the thumb 5 is open at the inner knuckle, as designated by the reference numeral 8, to allow for freedom in the bending and flexing of the fingers and thumb. This construction also provides for a snug fit around the digits.

Molded integrally with and extending between the fingers 1–4 and thumb 5 is a webbing 9. If desired, the webbing 9 could take the form of a continuous sheet to which individual fingers and thumb could be affixed. In either form, the webbing 9 is of such extent as to allow the wearer to separate, or extend, his fingers and thumb from one another, as shown in FIG. 1, to present a substantial web surface to the water.

The webbing 9 is formed with a plurality of fore and aft grooves 10 which parallel the fingers and thumb. There is one groove 10 on the back side of the webbing 9 between each set of fingers, and two grooves 10 between the index finger 1 and the thumb 5. One of these latter grooves is on the back side, and the other is on the front side. The purpose of the grooves 10 is to induce the webbing 9 to fold rearward when the fingers and thumb are retracted, as shown in FIG. 3. With respect to the portion of webbing 9 between the index finger 1 and thumb 5 the one groove 10 on the front side will induce a forward folding, to have an accordion-like collapse between thumb and index finger. The grooves 10 thus function as hinge lines, and it is a particular discovery that a groove on the back side will aid in having the webbing retract to the rear of the glove rather than fold in front of the fingers, so the wearer does not lose use of his fingers for grasping objects and making other hand manipulations. To aid the function of the grooves 10, the webbing 9 may be molded in the retracted position of FIG. 3, so that the natural position of the webbing 9 is a folded position between fingers. The webbing 9 may also be about 1/32 inch thick, or slightly less. It then has sufficient body to minimize indiscriminate collapsing folding and wrinkling as the fingers are moved together. Because of the preformed molded position and the differential in thickness, the grooves 10 are also better able to function, and because of its thickness the webbing 9 will have requisite strength for enhancing the life of the glove.

To complete the glove of FIGS. 1–3, the thumb 5 has a tab 11 to which is clasped a strap 12 of an adjustable wrist band 13. The band 13 ensures retention of the glove on the wearer's hand under all circumstances of use.

In FIG. 4 there is shown a fragmentary portion of an alternative embodiment. The fingers 14 and 15 shown therein are again integrally molded of rubber or suitable synthetic, with a webbing 16 therebetween. Each section of webbing 16 between two adjacent fingers, or between index finger and thumb, has a crosswise extending rib 17 at the outer end of the glove which is thicker than the rest

of the webbing. The glove is molded with the webbing **16** and the ribs **17** in the collapsed position of FIG. 6. The ribs **17** are preformed with two folds, so that when the fingers are retracted toward one another the webbing **16** will conveniently collapse into pleated folds that are out of the area at the front of the hand. The webbing between each set of fingers and between the index finger and thumb are of similar configuration. When the wearer extends his fingers the ribs **17** are straightened, together with the webbing **16**, as in FIG. 5. Thus, the area to the front of the fingers is kept clear for free use of the fingers and hand with minimal interference from the glove. Also, with the ribs **17** being of greater cross section the webbing **16** of FIGS. 4–6 can be thinner if desired to have an extremely light, easily manipulated glove.

Another feature of the glove of FIGS. 4–6 is that the webbing **16** joins the fingers at the middle of each finger, as distinguished from joining near the front as in FIGS. 1–3. With the double fold, and with the webbing **16** joining the fingers near their middle, most of the webbing **16** collapses between the fingers, and the resulting symmetry allows each glove to be used on either hand. The front and rear are alike, and a simple inversion of the glove allows it to be shifted from right hand to left hand, or vice versa. As a result one mold can be used for manufacturing gloves for both hands, with attendant savings.

The invention provides a swimming glove with webbing between the digits and thumb for enhancing the ability of a swimmer to propel himself faster, or for further distances when submerged. Also, the glove leaves the wearer's hand free for considerable manipulation and grasping of objects. The webbing includes a fold forming structure which induces the webbing to fold rearwardly, or into a position away from the front of the hand.



Several forms of fold forming structures have been shown, namely the hinge grooves **10** of FIGS. 1 and 3, the preformed ribs **17** of FIGS. 4–6, and also the preformed molding of the webbing itself in the position of FIG. 3. When the gloves are molded with fingers in retracted position the space required in the mold is reduced, and as a consequence smaller molds can be used. A high grade, flexible rubber is satisfactory for the gloves, and synthetics and other materials of satisfactory physical characteristics may be used.

I claim:

In a swimming glove the combination comprising: a set of tubular fingers that fits snugly on a wearer's hand and which are open at the tip ends, each finger having a bead at the inner end which fits with a smaller diameter than an associated inner knuckle; webbing attached to and extending between said fingers of flexible material; and a fold forming structure in the webbing between adjacent fingers that comprises cross ribs preformed in a folded position.


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MILTON BUCHLER, *Primary Examiner.*

ALFRED E. CORRIGAN, *Examiner.*