June 9, 1959 E. W. LAMB ET AL 2,889,563

SWIM FLIPPER

Filed Feb. 27, 1956

FIG_1

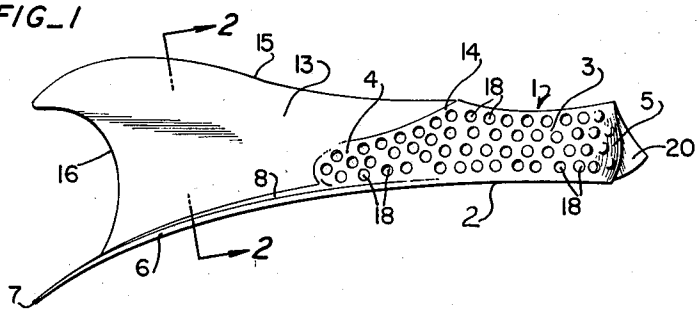


FIG_2

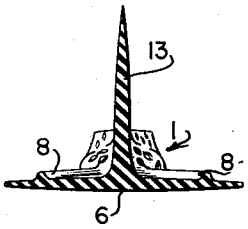


FIG_3

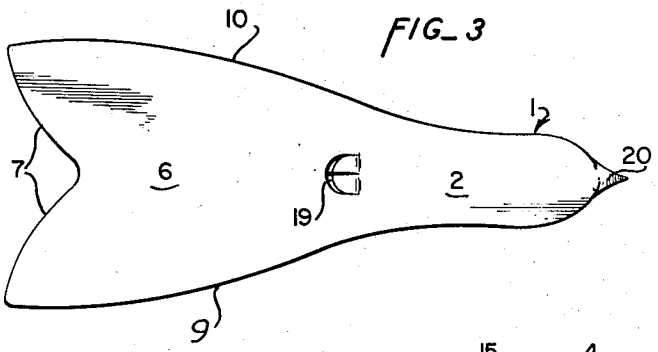


FIG_4

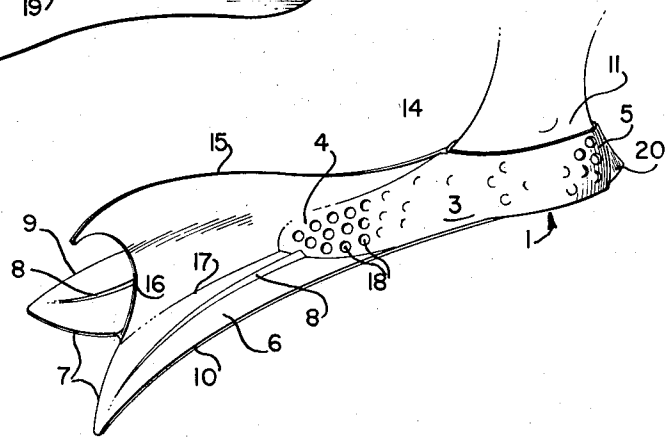
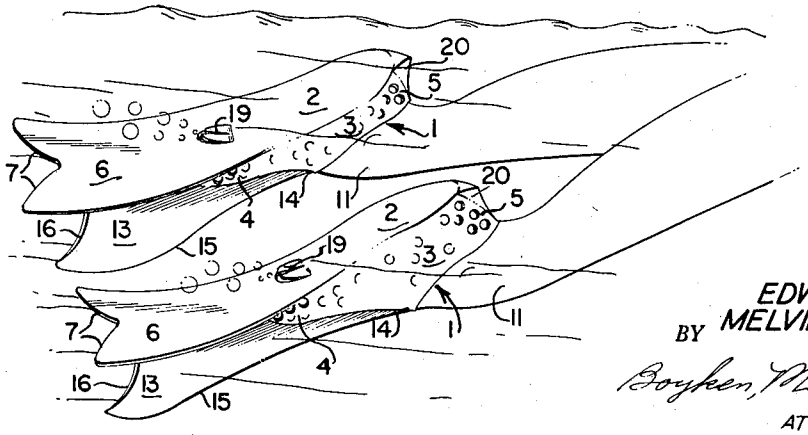


FIG_5



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SWIM FLIPPER

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6 Claims. (Cl. 9—21)

This invention relates to swim flippers of the type used to increase the kicking power of the swimmer.

Heretofore, swim flippers have consisted of some sort of pocket portion for receiving the foot of a swimmer and some sort of hinged or resilient web extending from the pocket portion. Usually this web has been formed to imitate a fish's tail except that it has been in horizontal extension of the swimmer's foot. The sole purpose of prior known swim flippers has been to provide the foot with a greater amount of water contact area in order to increase the speed available to a swimmer using a scissor-like kicking motion.

The prior art swim flippers, however, have provided a swimmer with only increased power or speed in a single direction and have made no provision for directional control. A swimmer using the prior art devices has therefore had to rely upon hand movements and twisting of the body in order to maneuver under water.

It is therefore the main object of this invention to provide a swim flipper so constructed as to provide a swimmer with directional control.

Another object of this invention is the provision of a swim flipper which aids a swimmer in maneuvering and controlling his speed in the water.

Still another object of this invention is the provision of a swim flipper which accomplishes the above advantages without appreciably increasing the drag on the swimmer's feet.

It is a further object of this invention to provide a swim flipper which, in use, most nearly simulates the action of a fish.

It is a still further object of this invention to provide a swim flipper having a stabilizer fin for increasing the control and thereby the safety of an underwater swimmer.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawings, in which:

Fig. 1 is a side elevational view of the swim flipper of this invention;

Fig. 2 is a cross-sectional view taken substantially along line 2—2 of Fig. 1;

Fig. 3 is a bottom plan view of the swim flipper of Fig. 1;

Fig. 4 is a perspective view of the swim flipper of Fig. 1 showing it on the foot of a wearer; and,

Fig. 5 is a perspective view of a pair of the swim flippers of Fig. 1 shown in use.

In detail, the swim flipper of this invention comprises a shoe or pocket portion generally designated 1, adapted to receive the foot of a swimmer. Said shoe portion includes a sole 2 and an upper section 3 which may have the conventional toe 4 and heel 5. For the purposes of this description, shoe portion 1 may be compared in general configuration with a low oxford or slipper, however, it is obvious that many modified forms of pockets may likewise be conformed to fit the foot of a wearer. One of such modifications might be provided by including merely the toe pocket 4 with a strap or the like

extending therefrom around the heel of a swimmer's foot. The sole effect to be achieved is the provision of a member which will remain in place on a swimmer's foot with comfort.

Projecting from the toe 4 of shoe portion 1 generally in extension of sole 2 is a generally horizontal web 6. Said web may be integrally molded with shoe portion 1 of a flexible, resilient, rubber-like material and is preferably formed to a thicker cross section adjacent toe 4 than at its outer free end 7. Said web may also be provided with longitudinally extending ribs 8 (Fig. 4) to provide for a greater flexibility at the outer free end of said web than at the juncture between web 6 and shoe portion 1.

The opposite side edges 9, 10 of web 6 preferably diverge from shoe portion 1 to the outer free end 7 thereof. Said side edges may be formed along a double curve as shown in Fig. 3 to be almost parallel at their juncture with free outer end 7.

The purpose of web 6 is to provide a substantially greater hydrodynamic surface to a swimmer's foot 11 (Figs. 4, 5) for substantially increasing the swimmer's kicking power and therefore speed available to him in the water. It has been found that web 6, although accomplishing the above purpose, does not aid in the swimmer's control of his direction through the water.

This invention therefore provides a generally vertical fin 13 projecting from said web. Fin 13 extends generally longitudinally from the instep 14 of shoe portion 1 to outer free end 7 of web 6 and may be integrally molded with the latter of a like material. It is noted in Fig. 2 that the cross section of fin 13 decreases as it projects away from web 6 so as to increase the flexibility of said fin near the outer edge 15 thereof. Outer edge 15 is likewise seen to diverge generally from shoe portion 1 to its outer free end 16 and said edge may be formed along a curve near said free end in a manner similar to edges 9, 10 of web 6.

If desired, both outer free ends 7 and 16 may be formed with reentrant angles so that the side edges 9, 10, and 15 extend further from shoe portion 1 than do the portions of web 6 and fin 13 adjacent their juncture 17. It will be noted that fin 13 is preferably placed on the upper side of web 6 so that a swimmer may comfortably walk on a beach or the like without interference from projections below the level of sole 2.

In operation, web 6, as previously described, provides power to a swimmer in a manner similar to a fish's tail by being oscillated through the water under the influence of a scissor-like kicking motion. To provide a more efficient angle of attack during this kicking motion, web 6 may be slightly angularly disposed with respect to sole 2 of the shoe portion 1 as shown in Fig. 1.

Fin 13 does not appreciably effect the power available from web 6, but instead acts in a manner similar to a rudder or keel on a boat. In this manner, fin 13 not only provides directional stability to the swimmer, but increases immeasurably his mobility and maneuverability. Through the use of this invention greater control is obtained during turns in the water and quicker stops are possible of attainment by the swimmer.

Since the efficiency obtained by a swimmer in the use of this invention depends somewhat on the fit of shoe portion 1 with respect to his foot 11, said shoe portion is preferably provided with a plurality of openings 18 therethrough. Said openings help create a suction between the wearer's foot and shoe portion 1 and thereby aid in gripping the foot. To provide for drainage of any water entering shoe portion 1, sole 2 may be provided with a flap covered opening 19 (Figs. 3, 5). Not only will opening 19 drain the water from shoe portion 1, but the

flaps associated therewith cover said opening to protect the wearer's foot while walking.

To decrease the resistance of shoe portion 1 through the water, heel 5 may be provided with a cutwater blade 20 projecting therefrom. Not only does blade 20 in effect streamline shoe portion 1, but said blade may act as a protective bumper in the event a swimmer should kick his heel against an underwater obstruction.

As previously explained, the entire flipper shown in Fig. 1, including shoe portion 1 and cutwater blade 20, is preferably integrally molded of a rubber-like material. Although the description and the drawings illustrate a particular modification of this invention, it is obvious that changes in design could be resorted to without departing from the spirit and scope of the invention.

We claim:

1. A swim flipper comprising a pocket portion adapted to receive at least the fore part of the foot of the wearer, a generally horizontal web projecting from said pocket in extension of the toe of the foot, and a generally vertical fin extending from said web adjacent the outer free end thereof and disposed longitudinally of the foot, the outer free side edges of said web and said fin diverging from said pocket portion to the outer free ends thereof.

2. A swim flipper comprising a shoe portion having an upper side and a lower sole and adapted to receive the foot of the wearer, a web projecting from the toe of said shoe portion generally in extension of the sole thereof, and a fin projecting from the upper side of said web and extending generally from said shoe portion to the outer free end of said web, the outer free side edges of said web and said fin diverging generally from said shoe portion to the outer free ends thereof.

3. A swim flipper comprising a shoe portion having an upper side and a lower sole and adapted to receive the foot of the wearer, a web projecting from the toe of said shoe portion generally in extension of the sole thereof, and a fin projecting from the upper side of said web and extending generally from said shoe portion to the outer free end of said web and forming a juncture therebetween, the outer free side edges of said web and said fin diverging generally from said shoe portion to the outer free ends thereof, said outer free ends of said web and said fin being formed with reentrant angles whereby

the outer free side edges of said web and said fin extend further from said shoe portion than the portions of said web and said fin adjacent the juncture therebetween.

4. A swim flipper comprising a shoe portion having an upper side and a lower sole and adapted to receive the foot of the wearer, a web projecting from the toe of said shoe portion generally in extension of the sole thereof, and a fin projecting from the upper side of said web and extending generally from said shoe portion to the outer free end of said web, and a cutwater blade projecting from the heel of said shoe portion for reducing the drag of said shoe portion through the water.

5. A swim flipper comprising a portion adapted to be attached to the foot of the wearer, a generally horizontal web extending from said portion in extension of the toe of the foot and having upper and lower surfaces and opposed free side edges, and a generally vertical fin projecting from one of said surfaces of said web between said side edges and extending from said portion in extension of the toe of the foot.

6. A swim flipper comprising a portion adapted to be attached to the foot of the wearer, a generally horizontal web extending from said portion in extension of the toe of the foot and having upper and lower surfaces and opposed free side edges, and a generally vertical fin projecting from one of said surfaces of said web between said side edges and extending from said portion in extension of the toe of the foot, said fin projecting further from said web at a point removed from said portion than adjacent said portion.

References Cited in the file of this patent

UNITED STATES PATENTS

169,396	Ahlstrom	Nov. 2, 1875
1,185,411	Kennard	May 30, 1916
1,494,452	Waldron et al.	May 20, 1924
1,590,484	Volker	June 29, 1926
2,321,009	Churchill	June 8, 1943
2,423,571	Wilen	July 8, 1947
2,729,832	Schmitz	Jan. 10, 1956
2,737,668	Cressi et al.	Mar. 13, 1956

FOREIGN PATENTS

746,764	Great Britain	Mar. 21, 1956