Oct. 22, 1963 H. BROWN ETAL 3,107,372

SWIMMING SHOES

Filed July 9, 1962

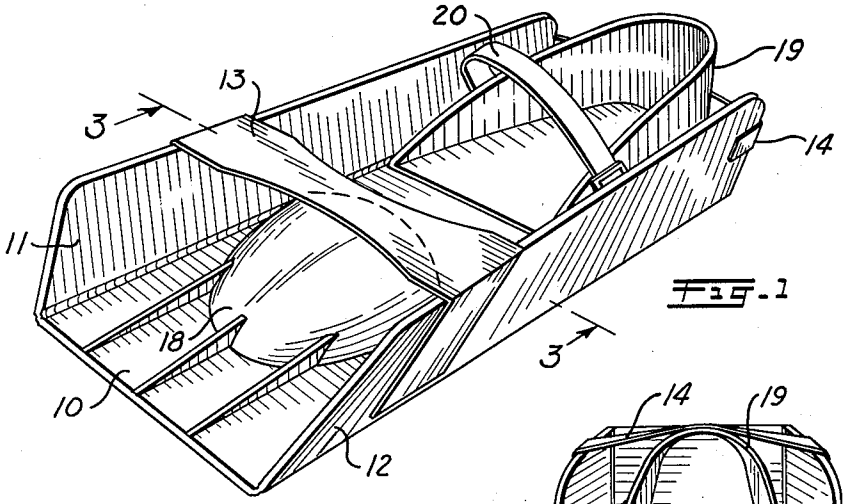


Fig. 1

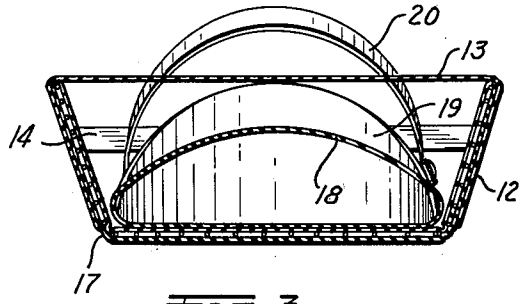


Fig. 3

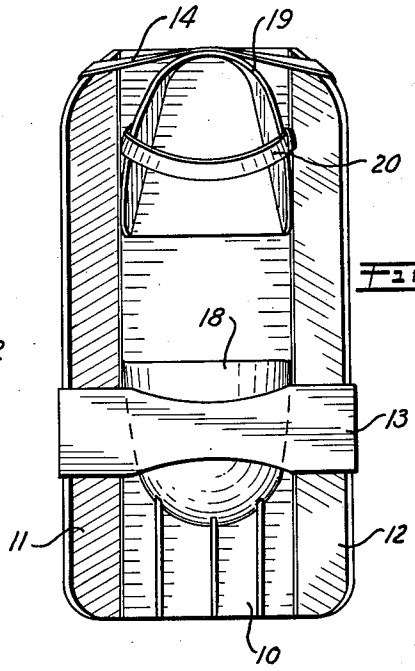


Fig. 2

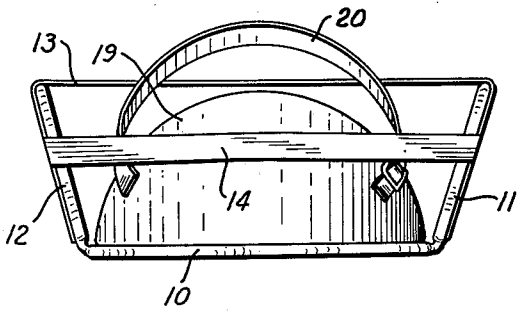


Fig. 4

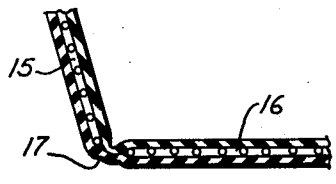


Fig. 5

INVENTORS.
HAROLD BROWN
HAROLD S. TUFT
MORRIS KAPLAN

BY

ATTORNEY

United States Patent Office

3,107,372
Patented Oct. 22, 1963

3,107,372
SWIMMING SHOES

Harold Brown, 2236 S. Milwaukee St., Denver 10, Colo.; Harold S. Tuft, 1755 Gilpin St., Denver 8, Colo.; and Morris Kaplan, 3705 E. Colfax Ave., Denver 6, Colo.

Filed July 9, 1962, Ser. No. 208,313
4 Claims. (Cl. 9—309)

This invention relates to a swimming shoe and has for its principal object the provision of a shoe to be worn by a swimmer which will act to give a greater purchase on the water so as to increase the speed and decrease the effort required of the swimmer.

The improved shoe is more particularly designed for use by swimmers using the Australian crawl type of leg stroke. In this type of stroke, the legs are alternately bent at the knee to swing the feet upwardly and forwardly with the heel and sole of the foot foremost. The legs are then straightened to kick the foot rearwardly with the top of the foot exerting a paddle-like action on the water to drive the swimmer forwardly. Another object of the invention is to provide a swimming shoe which will fold to provide minimum water resistance when the sole of the foot is swung upwardly and forwardly and a maximum resistance when the top of the foot is kicked or swung rearwardly and downwardly against the water to facilitate swimming the above described "crawl" stroke.

A further object is to provide a swimming shoe which will increase the swimmer's efficiency when swimming and which will not interfere with normal walking on the bottom of the beach.

Other objects and advantages reside in the details of construction of the invention which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

FIG. 1 is a perspective view of the improved swimming shoe;

FIG. 2 is a top plan view thereof;

FIG. 3 is a cross-section taken on the line 3—3, FIG. 1.

FIG. 4 is a rear elevational view of the shoe; and

FIG. 5 is a fragmentary enlargement of a portion of the section of FIG. 3.

The improved shoe comprises an elongated, substantially flat, sole plate 10 having two, normally upturned side flaps 11 and 12 hingedly mounted along its two longitudinal side edges. The side flaps 11 and 12 are constantly urged upwardly and inwardly toward each other by an elastic front band 13 and an elastic rear band 14. The bands 13 and 14 are formed from rubber or similar elastic material and are cemented, vulcanized, or otherwise attached to the side flaps. The normal length of the straps 13 and 14 is such that when fully contracted they will retain the side flaps in a substantially vertical slightly flaring position, as shown in FIGS. 1 and 3.

The sole plate 10 and the side flaps 11 and 12 are completely rubber covered. The side flaps are stiffened by an inner layer 15 of fabric or cord and the sole plate is similarly stiffened by an inner layer of fabric or cord 16. The rubber covering on the stiffening layers 15 and 16 is continuous on both faces thereof and extends therebetween to form flexible elongated hinges 17 between the sole plate and the side flaps.

A toe pocket 18 and a heel socket 19 is molded on or

permanently attached to the upper surface of the sole plate 10 for receiving the foot of the swimmer. A restraining strap 20 is provided on the heel socket to be passed over the instep of the foot for retaining the swimming shoe in place.

The sole plate is relatively wider at its toe than at its heel to provide a flaring front portion. The sole plate and the side flaps are relatively stiff but are free to flex when walking or swimming. The stiffness of the toe extremity of the sole plate is increased by molding longitudinally extending stiffening ribs thereon.

Let us assume that the above described shoes are in place on the feet of a swimmer and that a crawl stroke is being executed, that is, the feet are being swung upwardly and forwardly sole foremost then kicked rapidly downwardly and rearwardly to obtain forward thrust. Each time the sole of a foot swings forwardly the side flaps will fold tightly against the sides of the foot to create a minimum of resistance and each time the top of the foot is moved rearwardly in the power stroke the side flaps will open outwardly to increase the reaction of the stroke.

While the improved shoes are more particularly designed to increase the resistance when the top of the foot is moved rearwardly against the water, they also serve to increase the size of the sole of the foot so as to give added advantage on strokes in which the sole of the foot is moved against the water. In the latter case, however, the side flaps have no propelling effect.

While a specific form of the invention has been described and illustrated herein, it is to be understood that the same may be varied within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention what is claimed and desired to be secured by Letters Patent is:

1. A swimming shoe comprising: an elongated sole plate; a side flap hinged to each longitudinal edge of said sole plate; means for holding a swimmer's foot in place on the top of said sole plate; and resilient means constantly urging said side flaps upwardly from said sole plate to positions above the plane of said sole plate and at each side of said foot during the process of swimming.

2. A swimming shoe as described in claim 1 in which the resilient means comprises an elastic stretchable tie member permanently secured at its extremities to said side flaps and extending over and above said foot holding means.

3. A swimming shoe as described in claim 2 having a second elastic stretchable member positioned rearwardly of the heel of the user and extending between said side flaps.

4. A swimming shoe as described in claim 3 in which stiffening layers are positioned in said sole plate and said side flaps, said layers being rubber covered, the rubber covering forming the hinges between said sole plate and said side flaps.

References Cited in the file of this patent

UNITED STATES PATENTS

1,821,974	Leblanc	Sept. 8, 1931
1,983,609	Hudson	Dec. 11, 1934
2,094,532	Glad	Sept. 28, 1937
2,779,077	Kline	Jan. 29, 1957

FOREIGN PATENTS

380,854	France	Oct. 22, 1907
519,956	Great Britain	Apr. 10, 1940