Aug. 13, 1957 R. MAGONE 2,802,223

SWIMMING DEVICES

Filed Aug. 8, 1952 2 Sheets-Sheet 1

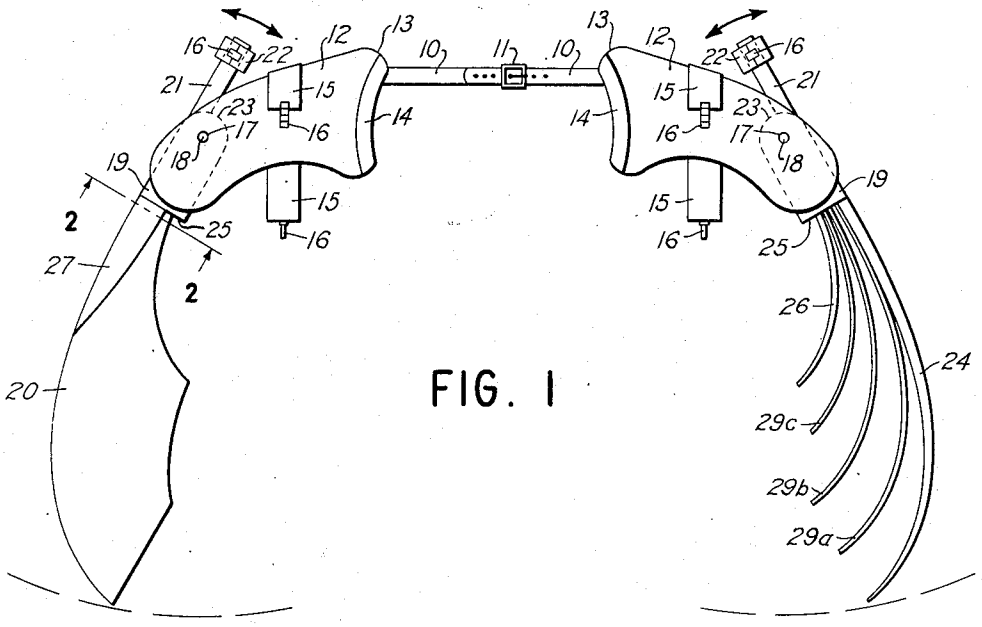


FIG. 1

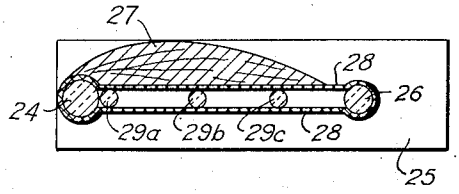


FIG. 2

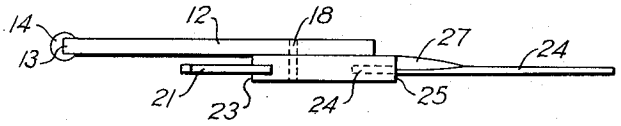


FIG. 3

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Aug. 13, 1957 R. MAGONE 2,802,223

SWIMMING DEVICES

Filed Aug. 8, 1952 2 Sheets-Sheet 2

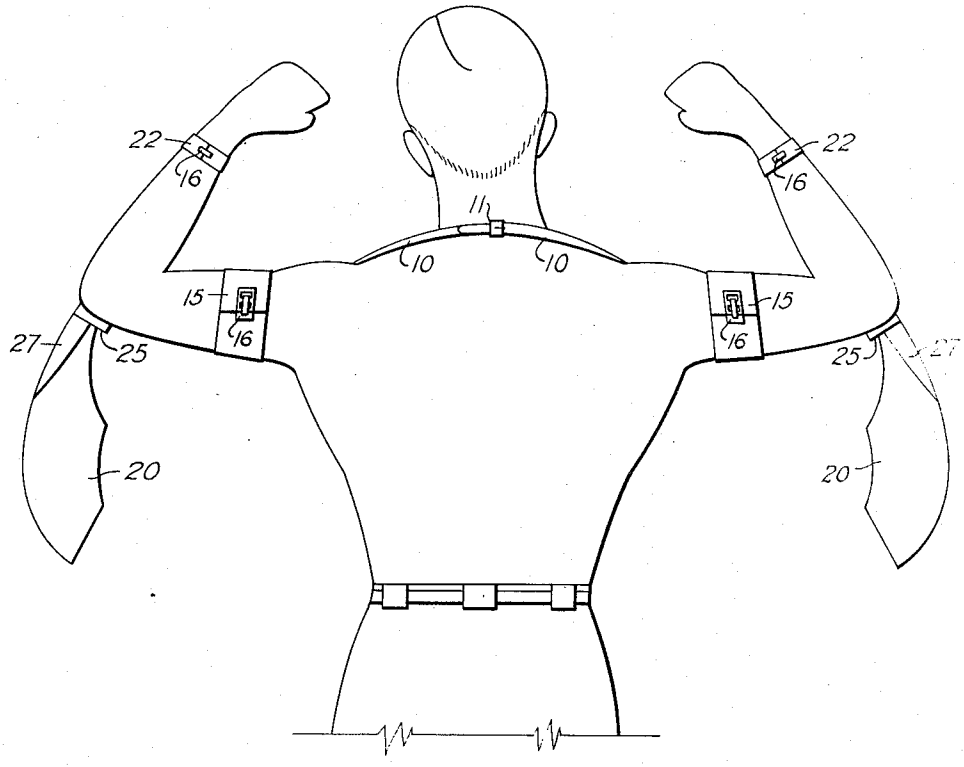


FIG. 4

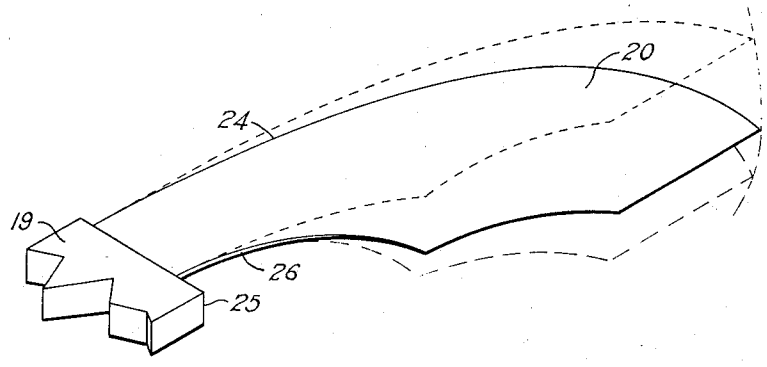


FIG. 5

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SWIMMING DEVICES

Roscoe Magone, Portland, Oreg.

Application August 8, 1952, Serial No. 303,291

8 Claims. (Cl. 9—21)

My device relates to mechanical means to aid and increase the efficiency of swimming.

One of the objects of my invention is to provide means by which one can increase his speed in swimming.

Another object is to provide a swimming aid device which will leave the swimmer free to use his hands and which would enable a swimmer with arms but without one or both hands to still use the swimming device.

Still another object of my invention is to increase the ease with which one may swim.

Referring to the drawings:

Fig. 1 is a top view of my swimming device showing the stock lever members, the adjustment and attachment strap and bands, the control levers, the streamlining block and the fin element members. In this figure the right side fin element member is shown with the covering material and streamlining block removed while the left side fin element member is shown with the covering and streamlining block in position. The heavy arrows at the top of the figure and the dashed lines at the bottom of the figure indicate the directions of movement of the control levers and fin elements.

Fig. 2 is a detail sectional view taken in the direction of the arrows along line 2—2 of Figure 1.

Fig. 3 is a front elevation of the right side of the device attaching strap and bands not being shown.

Fig. 4 is a back view of a man with the swimming device in place for use.

Fig. 5 is an isometric view of a typical fin element member, without the streamlining block, with part of the journal block broken away. The dotted lines in this view indicate the approximate attitude the fin element assumes on the downward stroke of the device; the dashed lines indicate the approximate attitude that the fin element assumes on the upward stroke of the device.

Referring further to the drawings:

The adjustment strap **10** is provided with a buckle **11** which enables the individual user to adapt the device to his own size. The stock lever members **12** are attached to the strap **10** at or near their forward edges of their ends **13**. The stock lever members **12** are also provided with padded and covered portions **14** on their ends **13** which fit the armpits of the user. The lever members **12** have upper arm bands **15** secured thereto by means of rivets which bands **15** in turn are equipped with quick releasing and adjustable hook snap type fasteners **16**. There is a hole **17** positioned near the outer forward edge of the members **12**, as best shown in Figure 1, into which is inserted a pin, bolt or other suitable pivotal means **18**. The pins, bolts or other suitable pivotal means **18** provide pivotal attachment for the journal blocks **19** of the fin element members **20** and pivotally attach the journal block **19** of the fin element members **20** to the under surfaces of the stock lever members **12** in such a manner that the fin element members **20** may only be moved in a plane parallel to that of the stock lever members **12**.

Control lever **21** is provided with an attachment band **22**, at its forward end, for receiving the forearm and extends forwardly from the rounded end **23** of each journal block **19**. A curved, tapered, semi-rigid rib **24** flexible at the outer end projects rearwardly from the opposite end **25** of the journal block **19**, rib **24** forming the leading edge of the fin element member **20**. A curved, tapered, flexible rib **26** forms the trailing edge of the fin element member **20**.

Between the ribs **24** and **26** a number of flexible ribs **29***a*, **29***b* and **29***c* are equally spaced with the exception of the rib **29***a* which is immediately behind the rib **24** and which contacts said rib **24** part of its length. The ribs **24**, **26**, **29***a*, **29***b* and **29***c* are constructed from fiber glass material but could be constructed from any other strong and flexible material. The base ends of all the rib elements are set into the end **25** of the journal block **19** along a line approximately at the middle of the depth of said block **19**.

A streamlining block **27** is positioned on the upper surface of the leading edge of the fin element member **20** and extends from the rear end **25** of the journal block **19** to a point approximately ⅓ of the length of the fin element from the base of said fin element **20**.

The fin element members are covered on both sides with tough linen fabric **28**. These fin elements may be made of sheet plastic, rubber or other flexible material and the element will perform satisfactorily if covered only on the upper surface.

The covering material **28** is secured to the ribs of the fin element **20** by stitching. No specific method of attachment is shown in the drawings and any known equivalent to stitching or any other suitable means may be used.

The user of the swimming device adjusts the strap **10** by means of the buckle **11** so that the padded portions **14** of the ends **13** of the stock lever members **12** snugly fit the armpits with the strap **10** coming up over the shoulders and across the back of the neck. The upper arms are secured to the stock lever members **12** by means of attachment bands **15** and quick releasing hook snap type fasteners **16**. The fasteners **16** are provided with a ladder effect adjustment means so that the user can adapt the bands **15** to his individual needs.

The elbow joints of the user are disposed approximately over the pin or other suitable pivotal means **18** thus allowing control of the fin element members **20** by means of the control levers **21** without undue restriction of the arm motion. The control levers **21** are secured to the forearms of the user by means of adjustable bands **22** and quick releasing adjustable hook snap type fasteners **16**, being adapted to the individual user's requirements in the same manner as the bands **15** are adjusted to the upper arms. As will be seen from the drawings this arrangement securely fastens the swimming device to the user in such a manner that his hands always remaining free and so that it may be quickly discarded, if necessary.

When the device is adjusted and in place on the user as described above the user simply moves his fore arms in the plane of the device to the right or left so as to obtain the desired location of the fin element members **20** with respect to his body and the direction of his intended travel always keeping each forearm at an acute angle to its respective upper arm, as shown in Fig. 4, or at an angle of not more than approximately 90° from its upper arm so that the fin element members **20** clear the body, substantially as illustrated in Fig. 4. The user then brings his forearms and elbows downwardly and inwardly under himself and then upwardly and outwardly to an approximately horizontal position with reference to the surface of the water in a smooth, and continuous, dipping and

rolling motion. The continuation of these movements causes each fin element member **20** to form a three-dimensional modified corkscrew-like pattern, the patterns of right and left fin element members **20** being reversed to each other with respect to their rotational movement. The structure of the fin element members **20** is unbalanced with respect to movement about the horizontal pivotal axis by reason of the ribs **24, 26, 29***a*, **29***b* and **29***c* radiating, curving rearwardly and fanning out from a contiguous position with respect to each other and from the relatively narrow spans at the ends of the journal blocks **19** to comparatively wide spans at their outer tips. The said fin element members **20** are unbalanced to the rear of their leading edges formed by the ribs **24** and are flexibly oscillated alternately up and down relative to the journal block end portions of said leading edge ribs **24** in coordination with the rotation and movement of the arms to which the particular unit is secured. The fin element members **20**, being unbalanced rearwardly of their leading edges, tend in both the upward and downward strokes to assume an angle which will take them along the path of least resistance through the water. It is by resisting or retarding this tendency of the fin element members **20** by the control levers **21** attached to the ends of the journal blocks **19** opposite said fin element members **20** that the user obtains and regulates the impelling force imparted by the fin element members. By continuing this operational cycle the swimmer or user is enabled to travel through the water rapidly and with comparatively little effort. On the downward stroke the fin element members, due to their flexibility, bend upward at their rear or trailing edge portion and outer or tip ends so that the left fin element in effect forms a left hand propeller and the right fin element forms a right hand propeller. On the upward stroke the left fin element forms a right hand propeller and the right fin element forms a left hand propeller. The propeller effect is accomplished by the force of the water being exerted against the flexible trailing or rear portions and tip ends of the fin members, first on the lower and then on the upper surfaces thereof. By the movements of bringing the forearms and elbows downwardly and inwardly under the user and then upwardly and outwardly to an approximately horizontal position with reference to the surface of the water a continuous propeller action is obtained on each fin element which propells the swimmer forward through the water at all times without any lost motion or break in the forward propelling reaction on the swimmer. On the downward stroke the reaction of the water against the flexible fin element members forces the swimmer forward, the water sliding from the under surfaces of the upward tilted trailing edges and tips or ends. On the upward stroke back to the horizontal position the water slides off the upper surfaces of the downward tilted trailing edges and tip or outer ends of the device and continues to force the swimmer ahead.

Either side of the device may be used alone if the user so desires. This is accomplished by means of an adapter strap, not shown in the drawings, being fastened to the strap **10** on the side of the device which the user desires to employ. The adapter strap would form a loop around the shoulder and armpit opposite to the side on which the device would be employed. The strap **10** would then come up over the shoulder from the end **13** of the side of the device in use, cross the back of the neck and fasten onto the looped adapter strap.

Every individual user will have a slightly different style but will soon find the one which is most efficient for him in the use of my swimming device.

Having thus described my invention, I claim:

1. A swimming device consisting of two stock lever members attachable to the upper arms of the user; a connecting strap between the said stock lever members securing the inner ends of the stock lever members under the arm pits of the user; a journal block pivotly connected to each stock lever member near its outer end; a control lever, rigidly connected with each journal block forward of its pivotal connection; an adjustable forearm attachment band attached to each control lever; an unbalanced flexible fin element attached to each journal block flexibly movable and oscillatory relative to the journal block end portion of the leading edge of said fin.

2. A swimming device consisting of a right and left unbalanced flexible fin element oscillatorily and flexibly movable; a control lever at the forward end of each fin element; a stream lining block on the leading edge of each fin element; a stock lever member pivotally attached to each fin element member; an adjustment strap connecting the stock lever members together and securely under the arm pits of the user; an adjustable forearm attachment band attached to each control lever; and an adjustable upper arm attaching band member attached to each stock lever member.

3. In flexible fin propelling means for a swimming device: a semi-rigid rib element forming a leading edge axis; a plurality of flexible rib elements; pliable material attached to and webbing all rib elements together; a streamlining block; a journal block into which all ribs are set; a control lever, attached to the forward end of the journal block; and, an adjustable attachment band for securing the control lever to the forearm of a swimmer.

4. In a swimming device consisting of two independent stock lever members, fitting under the arm pits and attached to the upper arms of the user: an adjustment strap connecting the arm pit ends of said stock lever members to each other; a journal block pivotally connected at the outer end of each of said stock lever members; a control lever, rigidly connected with the forward end of each journal block; and, an unstable flexible fin element, flexibly movable and oscillatory relative to the journal block end portion of the leading edge of said fin, fixed to and radiating from the end of each of said journal blocks opposite the said control lever.

5. In a swimming aid device: a right and left unbalanced fin element, fanning out from a point slightly below the elbow of each arm of the user in a direction substantially in line with the forearm and away from the hand, each fin element being oscillatorily and flexibly movable; stock lever members attached to the upper arms of the user; pivotal connection between each fin element and a stock lever member; at a point approximately under the elbow joint of the user; and, a strap element passing over the shoulders and back of the neck of the user, attached to and holding the stock lever members in position under the arm pits of the user.

6. In a swimming aid device, consisting of right and left unbalanced, flexible fin elements, oscillatorily and flexibly movable; stock lever members, whose inner ends fit under the arm pits of the user; a journal block pivotally attached to the outer end of each stock lever member; a control lever fixed at the forward end of each of said unbalanced fin elements; a stream lining block attached to the leading edge of the base end of each of said unbalanced fin elements, said fin elements consisting of a combination of a plurality of one semi-rigid and several flexible, tapered ribs radiating from a narrow span at the base end to a comparatively wide span at the outer end flexibly movable and oscillatory relative to the base end of the semi-rigid rib of said fin; a flexible covering over and fixed to said plurality of ribs; an adjustable attaching strap fastening the arm pit ends of said stock lever members to each other; adjustable attaching means securing the forearms of the user to the outer ends of said control levers; and additional adjustable attaching means securing the upperarms of the user to the stock lever members.

7. In a swimming device: stock lever members attachable to a users upper arms; an adjustment strap connecting the inner ends of the stock lever members; a journal block pivotally attached to the outer end of each stock lever member, said journal block being movable in a plane parallel to that of the stock lever member; a control lever

on the journal block extending forwardly therefrom; a forearm attachment strap secured to each control lever at the end opposite the journal block; an unbalanced fin element extending from the end of each journal block opposite said control lever member and curving rearwardly with relation to the journal block and stock lever member, said fin element being flexibly movable and oscillatory relative to said journal block end portion of its leading edge and maneuverable in coordination with the movements of the upper arm to which said stock lever member may be secured; and a streamlined block positioned on top of each fin element at the base of the journal block, conforming to and complementing the curvature of the leading edge of said fin element member.

8. In a swimming device: a stock lever member; a pivotal means near the outer end of said stock lever member; a journal block mounted upon and rotatable around said pivotal means; a control lever member projecting forwardly from the journal block, providing the means for rotating the journal block about said pivotal means in the plane of said stock lever member; an unbalanced fin element composed of a plurality of curved, tapered ribs projecting outwardly from the end of said journal block in close proximity to each other, said plurality of ribs being covered and curving rearwardly of said journal block and said stock lever member, forming into an unbalanced fin element unit flexibly movable and oscillatory relative to the journal block end portion of the leading edge of said fin element in coordination with the rotation and movements of said stock lever member and with the arm to which it may be attached.

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