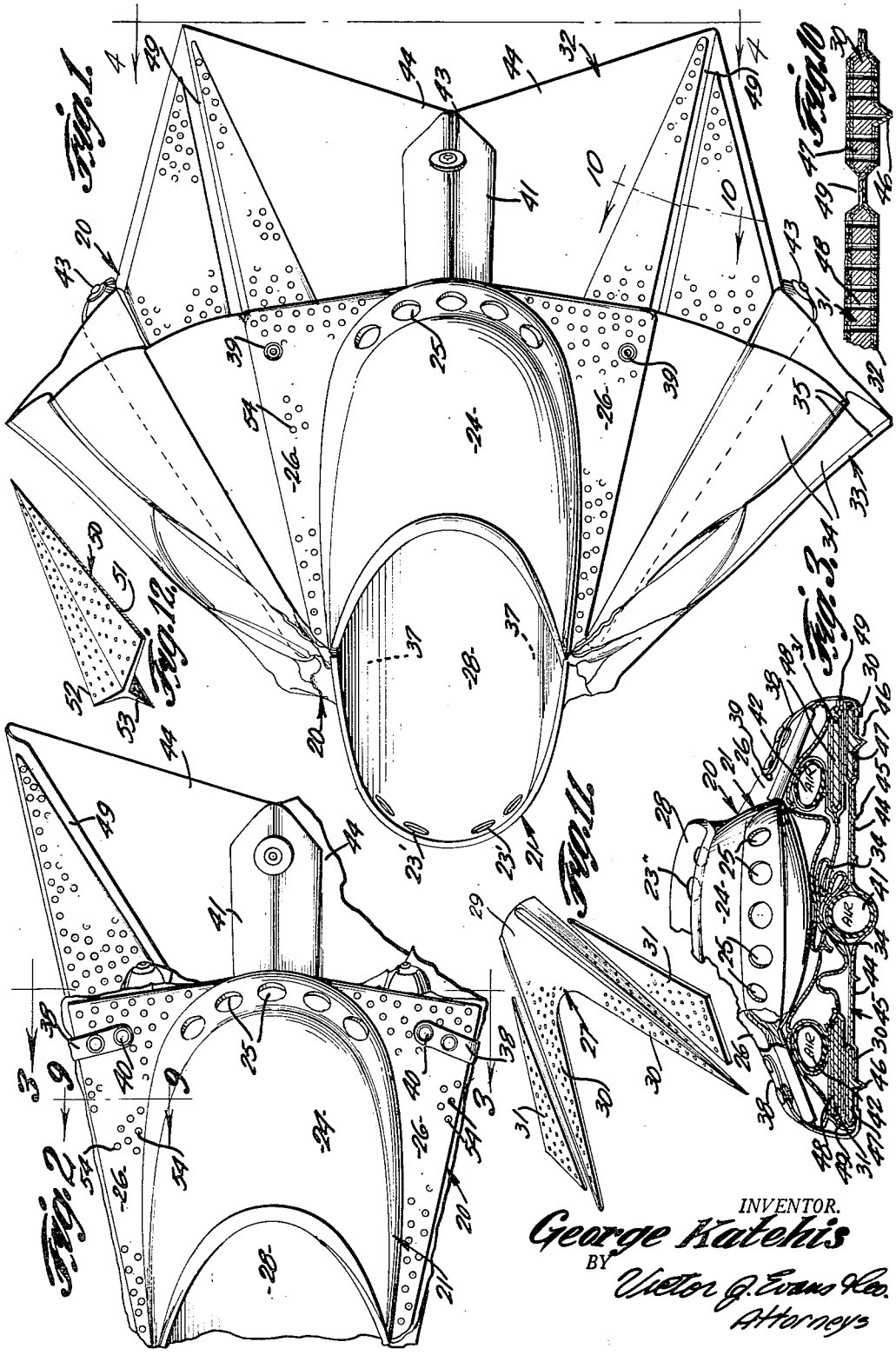
July 10, 1962 G. KATEHIS 3,042,943

SWIMMING FLIPPERS

Filed Nov. 30, 1960 2 Sheets-Sheet 1

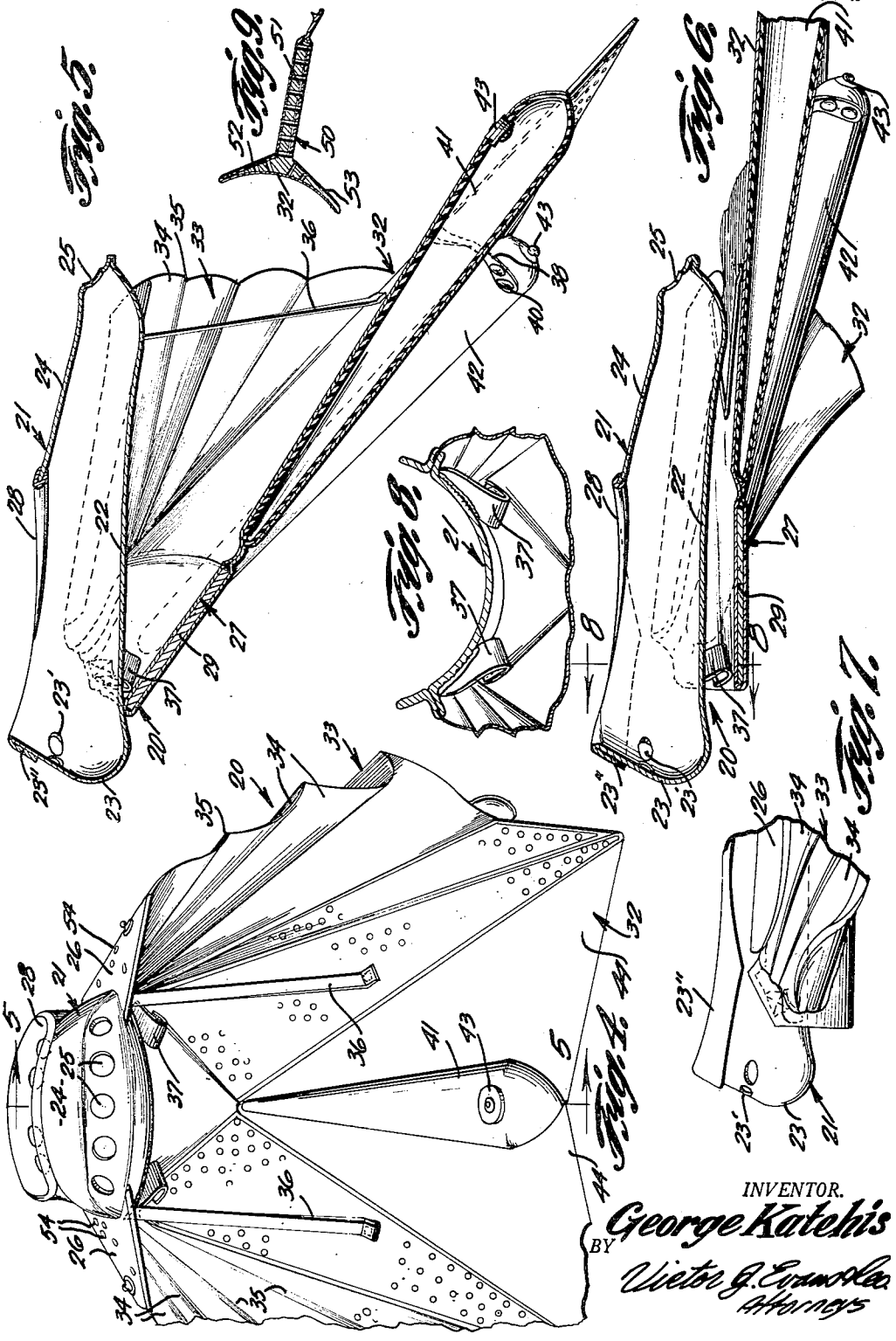


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SWIMMING FLIPPERS

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This invention relates to a swimmer's appliance, and more particularly to flippers which are adapted to be arranged in engagement with a person's feet so as to permit a person to swim with increased efficiency or facility.

The primary object of the present invention is to provide a flipper which will help sustain the facility of the swimmer to remain afloat and to increase his or her endurance and save his or her energy and this is the result of the incorporation of air tubes in the flipper.

Another object of the invention is to provide swimming flippers which are adapted to be conveniently mounted on the feet of a swimmer, and wherein the present invention includes a plurality of air tubes which will provide a buoyant effect to the flippers in order to increase the usefulness and effectiveness thereof.

Another object of the invention is to provide swimming flippers which include a body member that is adapted to conveniently and snugly receive a person's foot therein, and wherein there is also provided a support member which is hingedly or pivotally connected to the body member, and wherein when desired the body member and support member can be arranged in a position contiguous to each other, there being retainers for selectively maintaining these members in juxtaposition as desired or required.

A further object is to provide swimming flippers of the type stated that are economical to manufacture and efficient in operation and which are rugged in structure and foolproof in use.

These and other objects and advantages of the invention will become apparent from a reading of the following specification and claims, taken with the accompanying drawing, wherein like parts are referred to and indicated by like reference characters and wherein:

FIGURE 1 is a plan view of one of the swimming appliances of the present invention, and showing the device in open or extended position.

FIGURE 2 is a fragmentary top plan view similar to FIGURE 1, but showing the parts in closed position.

FIGURE 3 is a sectional view taken on the line 3—3 of FIGURE 2.

FIGURE 4 is a view taken generally on the line 4—4 of FIGURE 1.

FIGURE 5 is a sectional view taken on the line 5—5 of FIGURE 4.

FIGURE 6 is a sectional view similar to FIGURE 5 but showing the parts in closed position, the view shown in FIGURE 5 shows the parts in open position.

FIGURE 7 is a fragmentary elevational view illustrating certain constructional details of the present invention, and with the parts in closed position.

FIGURE 8 is a sectional view taken on the line 8—8 of FIGURE 6.

FIGURE 9 is a sectional view taken on the line 9—9 of FIGURE 2.

FIGURE 10 is a sectional view taken on the line 10—10 of FIGURE 1.

FIGURE 11 is a perspective view illustrating the plates and support member.

FIGURE 12 is a perspective view of the stiffener shown in FIGURE 9.

Referring in detail to the drawings, the numeral 20 indicates the swimming appliance or flippers of the present invention, and the appliance 20 is shaped to include a body member which is indicated generally by the numeral 21, and as shown in the drawings, the body member 21 embodies a sole portion 22 as well as a heel portion 23 and a top wall 24. There is provided in the top wall 24 adjacent the front end thereof a plurality of apertures or openings 25. The numeral 26 indicates side wings which are arranged contiguous to the opposite sides of the body member 21. The numeral 28 indicates an opening or enlarged cutout in the body member 21 which facilitates the insertion or removal of the foot of the swimmer from the body member 21.

The numeral 27 indicates a support member which may be made of a suitable material, and the support member 27 includes a web or connecting portion 29 as well as a pair of spaced apart triangular base members 30, FIGURE 11, and the web portion 29 is arranged contiguous to the body member 21. Arranged adjacent the side edges of the base members 30 are triangular shaped plates 31. The numeral 32 indicates a covering material or cover which may be made of a suitable fabric and which has a certain amount of flexibility, and the cover 32 encloses or surrounds the support member 27, the cover 32 being shaped to include side portions 33 which consist of a plurality of generally triangular sections 34 that are hingedly connected together by crease or fold lines or seams 35, FIGURE 5.

The numeral 36 indicates elongated strips which extend between the body member 21 and support member 27 and which are secured thereto, and these strips 36 serve to limit movement of the body member and support member away from each other, as for example as shown in FIGURE 5.

As shown in FIGURE 8 there is provided short straps 37 which connect the web portion 29 of the support member 27 to the body member 21, and these straps 37 function as hinge elements so as to permit movement of the body member and support member towards and away from each other as for example as shown in FIGURES 5 and 6.

Fasteners or straps 38 are suitably secured to the support member 27, and the fasteners 38 are provided with grippers 40 thereon for engaging projections 39 on the wings 26 so that when desired the device can be maintained in a folded or closed position as shown in FIGURE 6 for example.

The numeral 41 indicates an air tube which is mounted in a central portion 44 of the cover 32, and there is provided a pair of air tubes 42 which are suitably supported adjacent the outer edges of the plates 31. These air tubes are adapted to be provided with air check valves 43. Tapered ridges or ribs 45 depend from the portion 44 of the cover 32, and such ribs as those indicated by the numeral 46 depend from the base members 30, and the base members 30 may be hollow as indicated by the numeral 47 in FIGURE 10. The numeral 49 indicates a fold line or crease line between the plate 31 and base members 30, and this fold line 49 may be defined by a seam in the fabric cover 32.

As shown in FIGURES 9 and 12, a stiffener 50 may be provided, and one of the stiffeners 50 is adapted to be used adjacent each side of the body member 21, and each stiffener 50 includes a triangular section 51 as well as sections 52 and 53. The sections 51 may be embedded in or enclosed by a wing 26, while the section 52 is arranged in the adjacent portion of the top wall 24, and the section 53 is arranged in or embedded in the adjacent side edge portion of the sole 22 so as to help maintain the parts in their proper position.

From the foregoing, it is apparent that there has been provided a swimming appliance which is adapted to be used on the feet of a swimmer, and wherein the flippers or appliance of the present invention will permit a novice to swim with greater ease, and wherein experienced swim-

mers can swim with greater efficiency or effectiveness. The appliance **20** of the present invention is shaped to include the body member **21** which has a generally hollow interior as for example as shown in FIGURE 5 so that a person's foot can be snugly and conveniently received therein, and the opening **28** provides a convenient means for removing or inserting the foot into the body member **21**. The body member **21** is shaped to include the sole portion **22** as well as the heel portion **23** and the top wall **24** which has the openings **25** therein.

The appliance **20** further includes the support member **27** which is hingedly connected to the body member **21** as for example by means of the hinge straps **37**, and this construction permits the parts to move from a closed position such as that shown in FIGURE 6 to an open position such as that shown in FIGURE 5. The elongated strips **36** function as limit stop members so that the strips **36** serve to limit swinging or pivotal movement of the support member **27** away from the body member **21**, the ends of the strip **36** being secured to the body member **21** and support member **27**. When the device is to be maintained in closed position as shown in FIGURE 2 or as shown in FIGURES 3 and 6, the retaining straps **38** are positioned so that the grippers **40** engage the elements **39** so that the device will be maintained in a closed position, and when the device is to be moved to an open position, the grippers **40** can be readily manually disengaged from the elements **39** in order to permit opening thereof.

The support member **27** is enclosed within the fabric covering **32**, and the fabric covering **32** is shaped to include the central portion **44** which surrounds and supports the air tube **41**. The fabric **32** also includes the side portions **33** which are shaped to include the plurality of sections **34** that are joined by crease or fold lines **35** so that in effect the side portions **33** have a bellows-like formation so that the device can be readily expanded to an open position as shown in FIGURES 1, 4 and 5, or else it can be moved to a collapsed or folded position as shown in FIGURES 2, 3 and 6. Air tubes **42** are provided as shown in the drawings, and the tubes **41** and **42** are provided with air check valves **43**.

The support member **27** is shaped to include the web portion **29** as well as the base portions or members **30**, and the plates **31** are hingedly connected to the base portion **30** by means of the hinge portions or seams **49**. Edge portions of the fabric **32** are suitably fastened to the body member **21**.

As shown in FIGURES 9 and 12, stiffeners **50** are adapted to be provided adjacent the sides of the body member **21**, and each stiffener **50** includes a portion or section **51** which is suitably embedded in or positioned in a wing **26**, and sections **52** and **53** of the stiffeners **50** are emmedded in or positioned in the top wall **24** and sole **22** of the body member **21** and this construction serves to insure that the top wall **24** will be properly spaced or maintained in separated positions from the sole **22** so that there will be sufficient clearance whereby the person's foot can be readily inserted in or removed from the body member **21**.

Suitable apertures or openings can be provided in the various parts wherever desired, and the various elements can be made of any suitable material and in different shapes or sizes.

The present invention thus is a swimming appliance or flippers which are adapted to be attached to the feet of a person so as to assist the user in swimming, treading water and carrying out other aquatic accomplishments. The present invention is constructed so that the body member **21** and support member **27** are hingedly connected together as at **37**, and wherein due to the provision of the flexible side portions **33**, the device can extend or contract as the feet or legs of the swimmer are moved. Thus, there is provided the covering **32** which embodies the foldable and expansible sections **34** which are adapted to open during the rearward or swimming stroke of the foot, and these sections can collapse or fold during the reverse movement of the feet. Thus, there will be offered resistance in the propulsion stroke of the leg and on the return stroke collapsing of the device will take place, so that a person can swim more quickly and easily and safely when using the present invention.

Certain portions of the flipper may be molded so that they will have an integral formation and for example the parts may be molded of a suitable plastic or rubber-like material. The air tubes **41** and **42** are adapted to be filled with air under pressure from a suitable source of supply such as an air pump which can be manually operated, or else these tubes can be filled as for example at a vehicle service station, and the air is controlled by the valves **43** at the ends of the tubes. Three of the tubes are provided for each flipper, and each valve **43** is used to increase or decrease the air pressure according to the depth desired by the user. Thus, an experienced diver or swimmer may require less air pressure to assist him than a novice or amateur, and these air tubes are separate and apart from each other. In certain instances the air tubes may be made in a double formation that is one within the other and the inner one may be made removable or replaceable. The flipper will work from up and down movement without considerable knee action to get any additional thrust. As shown in FIGURE 1 for example, certain of the parts such as the wings **26** are heavily perforated or provided with openings as indicated by the numerals **54**.

The ribs such as the ribs **46** and **45** serve to reinforce the adjacent parts of the device, and these ribs also function as guide vanes so as to help stabilize the device in the water.

It will be seen that according to the present invention there has been provided swimming flippers which utilize air tubes that provide an increased buoyant action, and wherein the covering has the extensible sections **34** so that a web foot type of arrangement is provided which is somewhat similar to the web feet of a duck. When the parts are arranged as shown in FIGURE 6 for example or as shown in FIGURE 2, the grippers **40** are engaging the elements **39** so that the device is fastened in closed position whereby a person can properly walk on land or the like. When the device is being used in water, the grippers **40** are disconnected from the elements **39** so that the parts can be in the extended or expanded position such as that shown in FIGURES 4 and 5 or in FIGURE 1.

The flippers of the present invention are adapted to be used as swimming aids and function automatically when the user kicks or fans the water. The air tubes also function to open the flippers ready for operation and are actuated quickly, and easily.

The flipper of the present invention will help sustain the facility of the swimmer to remain afloat and will increase his endurance and save his energy due to the incorporation of the air tubes which are believed to be a novel and important feature of the present invention. The flipper may be made of a suitable material such as stainless steel to provide the necessary stiffness and/or unbreakable plastics or other suitable material which will not rust or break. The covering material of the stiffening plates may be made of rubber, synthetic rubber-like material, nylon plastics or other waterproof material which is available.

The openings **25** permit the expulsion of water taken in from the top edges of the slipper and these openings **25** also prevent a vacuum or suction from occurring when removing the flipper and to facilitate putting the flipper on the feet when in the water.

The wing **26** is of a somewhat stiff formation so that it can be used as a helm for steering in order to eliminate the use of the arms.

The points of contact with a person's feet are adapted

to be made soft fitting, as for example no stitches will come in contact with the feet or other portions of the user's body so that rubbing of stitches against the skin will be prevented. In addition the various parts which engage the feet are made of soft fitting material. The heel is reinforced and the numeral 23' indicates openings or apertures in the heel which facilitate pulling the flippers on and off. The numeral 23'' indicates the reinforced heel strip for the device.

The check valves 43 for the tubes 42 are arranged in the front ends of the tubes so as to permit the flipper to be folded for easy packing or carrying.

Minor changes in shape, size and rearrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

What is claimed is:

1. In a swimming appliance, a body member shaped to include a sole portion and a heel portion, said body member further including a top wall provided with a plurality of spaced apart apertures adjacent the front end thereof, wing arranged contiguous to the outer side portions of the body member, a support member including a web portion and a pair of spaced apart generally triangular base members, plates hingedly mounted adjacent the outer side edges of said base members, a flexible covering surrounding said support member and plates, said cover including side portions which are connected to the wings, said side portions embodying a plurality of extensible sections which are interconnected by seams that define fold lines.

2. The structure as defined in claim 1 and further including elongated strips extending between the body member and support member and secured thereto.

3. The structure as defined in claim 1 and further including hinge strips connecting the web portion of said support member to said body member.

4. The structure as defined in claim 1 and further including interengaging gripper fasteners on said wings and support member.

5. In a swimming appliance, a body member shaped to include a sole portion and a heel portion, said body member further including a top wall provided with a plurality of spaced apart apertures adjacent the front end thereof, wings arranged contiguous to the outer side portions of the body member, a support member including a web portion and a pair of spaced apart generally triangular base members, plates hingedly mounted adjacent the outer side edges of said base members, a flexible covering surrounding said support member and plates, said covering including side portions which are connected to the wings, said side portions embodying a plurality of extensible sections which are interconnected by seams that define fold lines, elongated strips extending between the body member and support member and secured thereto, hinge strips connecting the web portion of said support member to said body member, interengaging gripper fasteners on said wings and support member, an air tube positioned between the base members of said support member, and a pair of air tubes arranged adjacent the outer edges of the plates.

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