J. DAVIS.

SWIMMING DEVICE.

APPLICATION FILED FEB. 13, 1914.

1,094,538.

Patented Apr. 28, 1914.

Fig. 1.

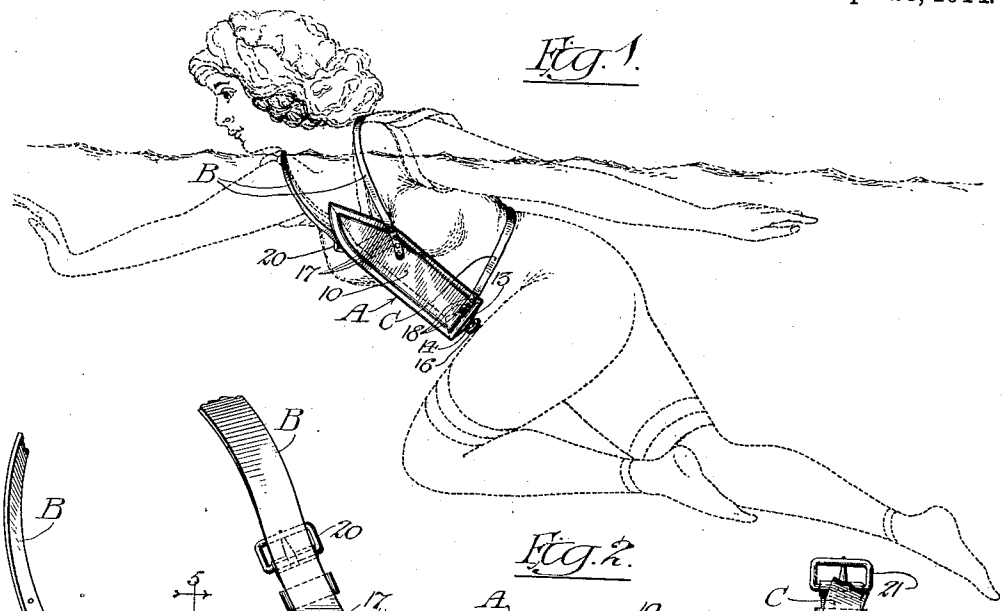


Fig. 2.

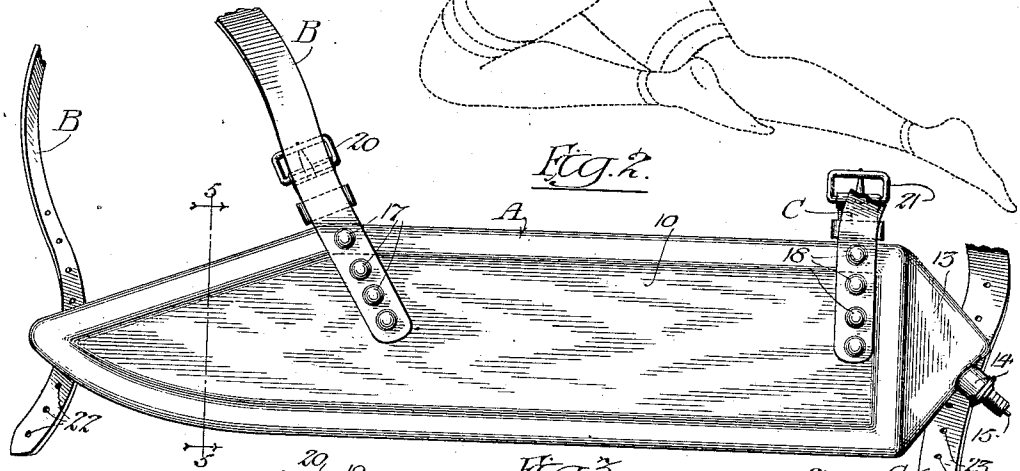


Fig. 3.



Fig. 4.

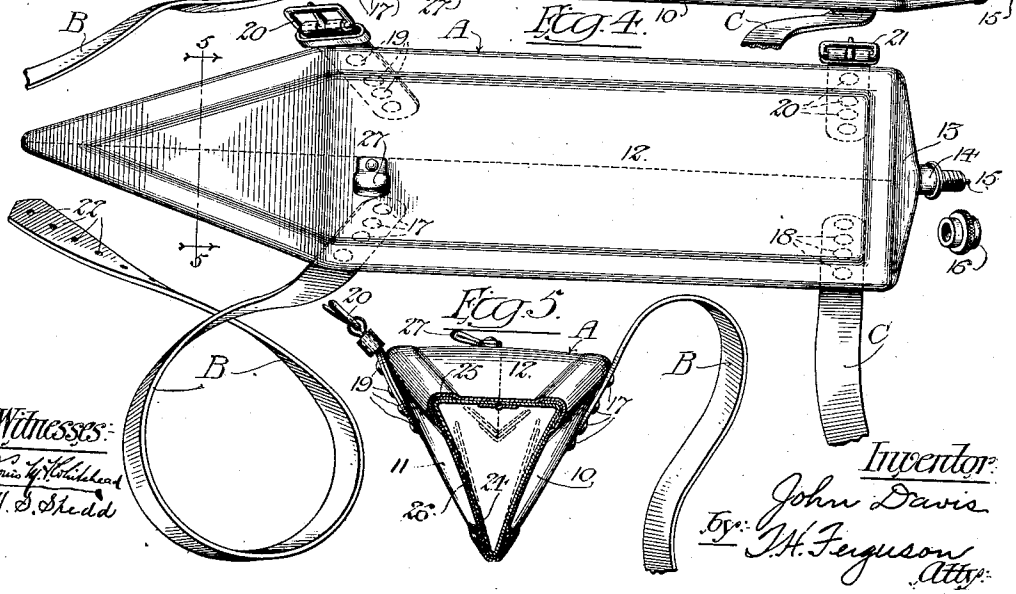


Fig. 5.

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UNITED STATES PATENT OFFICE.

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SWIMMING DEVICE.

1,094,538. Specification of Letters Patent. Patented Apr. 28, 1914.

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To all whom it may concern:

Be it known that I, JOHN DAVIS, a citizen of the United States, residing at Bloomington, in the county of McLean, State of Illinois, have invented certain new and useful Improvements in Swimming Devices, of which the following is a specification.

The present invention relates to swimming devices and more particularly to devices in which a collapsible pneumatic member is employed to support the swimmer when in the water.

In carrying out my invention, I employ an elongated pneumatic member having sides and deck of rigid sheets hinged together so as to be readily folded up when not in use and readily expanded for use. This member is secured to the body of the wearer by straps or other suitable means. The member is also constructed so that when expanded it will lock itself against collapse except for the application of pressure to a particular portion of the deck.

The various features of my invention will be best understood upon reference to the following detailed description taken in connection with the accompanying drawing, and the scope of the invention will be particularly pointed out in the appended claims.

In the drawing, Figure 1 is a view illustrating a device constructed in accordance with my invention and the way it is to be worn by the user; Fig. 2 is a side elevation of the complete device in its collapsed condition; Fig. 3 is a top view of the same in a similar condition; Fig. 4 is a top view of the device in expanded condition; and Fig. 5 is a sectional elevation viewed from the forward end of the device, the section being taken on a plane indicated by the line 5—5 of Figs. 2 and 4. This figure also indicates, by the dotted lines, the direction in which the parts move when the device is being collapsed.

Throughout these views like characters refer to like parts.

Referring to the drawing in detail, A designates generally the pneumatic member which is preferably secured to the body of the wearer by means of straps B and C. The straps are provided with buckles and suitable perforations so as to be properly adjusted when the device is in position. The strap B is preferably arranged to pass around the neck of the wearer, while the strap C is arranged to pass around the waist. As clearly illustrated, the member A is elongated, having a prow at its forward end and valve mechanism at its rear end, by which air may be supplied to its interior. The pneumatic member A consists essentially of sides 10 and 11, a deck 12, and a stern-piece 13. The sides and deck include stiff sheets of material, such as fiber, while the stern-piece is composed of flexible material. As illustrated, the sides 10 and 11 are hinged together along their lower edges; the outer edges of the deck 12 are hinged to the upper edges of the sides 10 and 11, respectively; the sides 10 and 11 and the deck 12 are shaped at their forward ends so as to provide an upturned prow and a downwardly and forwardly inclined deck portion; and the stern-piece 13 is secured to the rear ends of the sides and deck. The deck 12 is divided by a central longitudinal line into two parts and upon depressing the deck its parts will fold down between the sides 10 and 11 and the complete member will be collapsed. This position of the member is illustrated in Fig. 3.

Air may be supplied to the interior of the member A through a valve controlled passage in the valve connection 14, which is of common construction, such as employed on bicycle and automobile tires. The stem 15 of the valve extends slightly beyond the threaded portion of the connection so that the valve may be raised from its seat to open a passage for the admission of air. The member A may be readily expanded by placing the valve connection 14 between the lips and the end of the stem 15 against the teeth so as to open the valve while blowing in air. A cap 16 may be screwed on the connection when air has been supplied to prevent its subsequent escape past the valve; thus the member A may be kept in expanded condition.

As clearly illustrated, the straps B and C are secured by rivets 17, 18, 19 and 20 to the sides 10 and 11. Buckles 20 and 21 coöperate with the perforations 22 and 23 in the straps to permit an adjustment of the device upon the wearer.

The hinges formed between the stiff sheets of the sides and deck, may be provided in any suitable way, but I prefer to use strips of rubber, or similar flexible and waterproof material, for this purpose. Various means may also be employed for rendering the member A air-tight. Indeed, the sheets

of fiber and the piece 13 might be of suitable water-proof and air-tight material so that when combined with the hinge strips, a water-proof and air-tight member would result. However, I preferably cover the entire structure with sheet rubber, either in the form of rubber tissue alone, or reinforced with cloth or other fibrous material. This preferred structure is shown best in Fig. 5, where 24 designates the inner sheet of fiber, 25 the intermediate hinge strip of rubber, and 26 the outer covering of rubber.

In operation, the parts of the member A, when collapsed, occupy the position illustrated in Fig. 3; when expanded, the position illustrated in the remaining figures. An intermediate position is indicated by the dotted lines in Fig. 5. These latter lines show the relation of the parts when the two parts of the deck 12 are moved downward between the sides 10 and 11 as the member is collapsed. As the member is being expanded, the deck parts move upward and force the upper edges of the sides 10 and 11 outward. This movement places those portions of the sides 10 and 11 which are in the neighborhood of the prow, under tension and slightly curves them, as indicated by the full lines in Fig. 5. As a result these sides exert a normal tension tending to collapse the member. As the parts of the deck 12 move upward toward the expanded position, the center of the deck reaches a point which is in the plane which joins its outer edges. This is the dead center point. As soon as the central portion of the deck passes this point, it is prevented from going farther by the tension exerted by the forwardly and downwardly inclined deck portion. In this way the sides 10 and 11 are prevented from collapsing the member, and all the parts are held locked in expanded position. In expanding the member A, the deck may be drawn upward by means of a tab 27 secured to the deck adjacent to its central line and just to the rear of the inclined deck portion. As the deck is thus drawn up air may be admitted through the valve controlled passage in the valve connection 14, if at the same time the valve stem 15 is pressed inward so as to open the passage. If the air admitted in this way is not sufficient, then additional air may be supplied by blowing through the passage, as before explained.

It will be seen from this description that the fact that the sides 10 and 11 are given a slight forward curvature at their forward end and are secured along that line of curvature, tends to hold the sides together in collapsed position. This is overcome by the toggle action of the parts of the deck 12 as the deck is drawn upward and slightly beyond dead center. Thus the deck serves as a toggle to hold the sides apart. The movement of the deck in its upward direction is limited because of the restraining force due to the downward and forward inclination of its forward end. This construction and arrangement of parts I consider an important feature of my invention. It is obvious that in practising my invention this feature might be embodied in many different forms. For example, A might be shaped with a prow of this character at each end, instead of a prow at one end and a stern-piece 13 of flexible material at the other end.

Other modifications will also suggest themselves to persons seeking to practice my invention. I, therefore, do not wish to be limited to the precise structure and arrangements herein shown and described, but aim to cover by the terms of the appended claims all such modifications as justly come within the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A swimming device comprising a collapsible pneumatic member for supporting the swimmer in the water, including substantially plane sides and deck composed of stiff sheets hinged together at their edges and shaped so as to form at the forward end of the member a prow and a downwardly and forwardly inclined deck portion and having the deck hinged along a central longitudinal line so that when said member is collapsed the parts of the deck will fold down between the sides and when said member is expanded the deck will bulge upward slightly beyond the plane uniting its edges to lock said member against collapse.

2. A swimming device comprising a collapsible pneumatic member for supporting the swimmer in the water, means for securing said member to the body of the swimmer, and a valve-controlled passage by which air may be supplied to the interior of said member, said member including two sides and a deck of stiff sheets hinged together and shaped to form at the forward end of the member a prow and a downwardly and forwardly inclined deck portion and united at the rear end of said member by a flexible sheet through which said valve-controlled passage extends, the deck being hinged along a central longitudinal line so that when said member is collapsed the parts of the deck will fold down between the sides and when said member is expanded the deck will bulge upward slightly beyond the plane uniting its edges to lock said member against collapse.

3. A swimming device comprising a collapsible pneumatic member for supporting the swimmer in the water, a strap secured near the forward end of said member and adapted to extend around the neck of the swimmer, a second strap secured near the rear of said member and adapted to extend

around the waist of the swimmer, and a valve-controlled passage at the rear of said member whereby air may be supplied to the interior of said member, said member including two sides and a deck of stiff sheets hinged together and shaped to form at the forward end of the member a prow and a downwardly and forwardly inclined deck portion and united at the rear end of said member by a flexible sheet through which said valve-controlled passage extends, the deck being hinged along a central longitudinal line so that when said member is collapsed the parts of the deck will fold down between the sides and when said member is expanded the deck will bulge upward slightly beyond the plane uniting its edges to lock said member against collapse.

4. A swimming device comprising a collapsible pneumatic member for supporting the swimmer in the water, having sides normally tending to lie in collapsed position and put under strain when moved therefrom toward expanded position, a deck having two parts hinged together and secured respectively to said sides, lying when collapsed between said sides and when expanded acting with a toggle action upon said sides to force them apart and put them under tension, and means for stopping said deck parts when in their movement in expanding direction they reach a point slightly beyond dead center, whereby the deck parts hold the sides and the entire member in expanded position.

5. A swimming device comprising a collapsible pneumatic member for supporting the swimmer in the water, having substantially plane sides and deck composed of stiff sheets suitably hinged together at their edges and having the deck hinged along a central longitudinal line so that when said member is collapsed the parts of the deck will fold down between the sides.

In witness whereof, I hereunto subscribe my name this 10th day of February, A. D. 1914.

JOHN DAVIS.

Witnesses:
B. S. Herrick,
Chas. S. McKinny.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."