Sept. 16, 1924. 1,508,651

G. EVANS

DEVICE TO AID SWIMMING

Filed Nov. 7, 1923

Fig. 1.

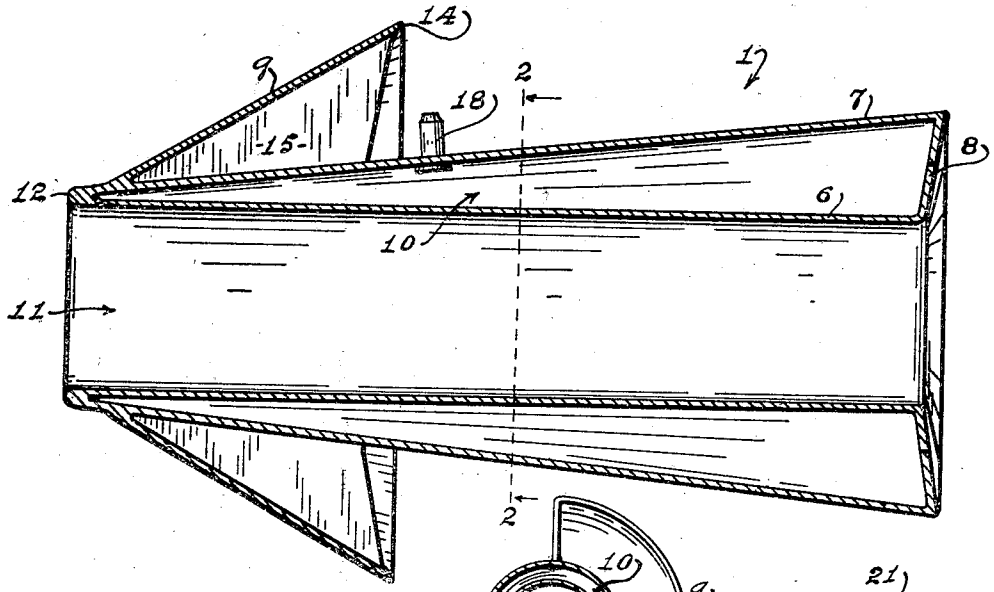


Fig. 3.

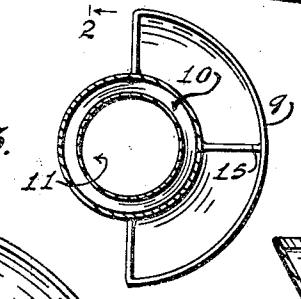
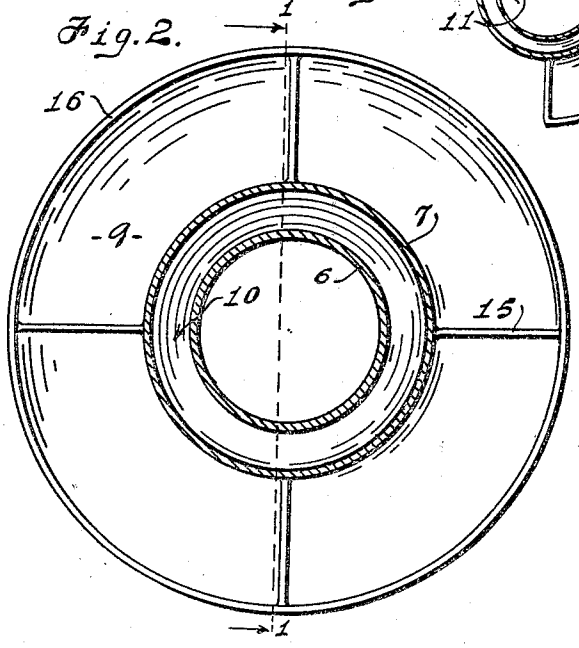


Fig. 2.



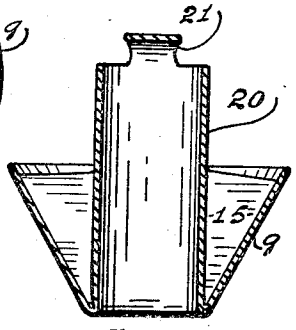


Fig. 4.

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UNITED STATES PATENT OFFICE.

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DEVICE TO AID SWIMMING.

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To all whom it may concern:

Be it known that I, GEORGE EVANS, a citizen of the Dominion of Canada, and a resident of Redondo, in the county of Los Angeles and State of California, have invented new and useful Improvements in Devices to Aid Swimming, of which the following is a specification.

My invention relates to devices to aid swimming, and has for its principal object the provision of a device that will add the requisite buoyancy to the human body, while rendering the strokes of the limbs more effective.

Another object of the invention is to provide a device which may be sold and used in pairs, so that an added factor of safety is provided.

Another object of the invention is to provide a simple light weight and inexpensive device of the above described character which may be conveniently wrapped into a small package.

Still another object of the invention is to provide a device that may be applied to the body merely by slipping it over an arm or leg, and which when in use will offer minimum resistance as the limbs are being thrust forward in the water, while providing maximum resistance on the reverse stroke.

A further object of the invention is to eliminate the use of straps, buckles, and any fastening means which might become accidentally disengaged.

Still other objects and advantages will appear hereinafter and will be better understood by virtue of the order of their occurrence.

I have illustrated by the accompanying drawings a preferred embodiment of my invention. In the said drawings,

Figure 1, is a view in section of the embodiment as seen on a line 1—1 of Fig. 2.

Figure 2, is a view in section as seen on a line 2—2 of Fig. 1.

Figure 3, is a similar view of a modified form of the invention.

Figure 4, is a view in longitudinal section of a form of the invention adapted to be used on the leg.

More specifically, in carrying out my invention in the embodiments shown, I employ a suitable material, such as rubber, which I mould by any of the well known means into a single unit 1, comprising essentially annular walls 6 and 7, respectively, an end wall 8, and an annular diverging wall 9, of substantially cone shape.

Walls 6, 7 and 8, together provide what I hereinafter term a hollow sleeve, or cuff, inasmuch as walls 6 and 7 are spaced apart to provide an air space 10, while the end wall 8 renders said space fluid tight. Wall 6 is shown as of substantially constant diameter throughout so that a straight central aperture 11 is provided. Wall 7 joins wall 6, as at 11, to provide a substantially sharp edge, while increasing in diameter rearwardly. Thus space 10 is of increasing volume rearwardly, and while the forward end of the sleeve is of minimum thickness so as to offer minimum resistance, the space 10 is of appreciable volume.

I provide a filler valve 18, of any suitable construction. Said valve is of the type such as is used on inner tubes of automobile tires, and is adapted to allow air to be forced into space 10 and preventing its escape therefrom. Such valves are well known, and therefore I have not illustrated or described the valve in detail.

It will be apparent now that the sleeve, or cuff, may be placed over the human arm (not shown), and particularly upon being inflated, wall 6 will adapt itself to the contours of the arm and thereby be held firmly thereon against accidental removal or dislodgment. It will be apparent that as the limb to which the sleeve is applied is thrust forwardly in water, said sleeve will offer very little resistance. Obviously, however, upon reverse movement of the limb the end wall 8, which is of sufficient rigidity, will offer considerable resistance. Thus a person wearing a pair of my improved devices, will not only have the advantage of the buoyancy thereof, but the energy of his strokes will be highly effective in propelling him through the water.

Annular wall 9, provides additional resistance to the water during a reverse stroke. To hold the outer edges 14 of said wall in effective spaced position relative to the sleeve itself, I provide a plurality of webs 15, connecting said wall with the sleeve. The webs are so proportioned that portions of wall 9 are provided with a certain degree of slack, as at 16, and the tendency of the webs is to allow the conically arranged wall 9 to collapse slightly as the sleeve is thrust forwardly through the water.

It will be seen now that when the sleeve

is being drawn backwardly through the water, the said wall will flare outwardly as far as the webs will allow it to, and offer increased resistance.

In the application of my improved device, a pair of them should be used; one for each arm. Each sleeve is suitably disposed over the arm and subsequently inflated by blowing through the valve. The internal pressure, as explained, now holds each sleeve securely in place. As soon as the wearer submerges his arms the buoyancy of the sleeves comes into effect and he may float in water with ease merely by keeping the arms submerged. In swimming the devices not only add to the swimmer's buoyancy but render his swimming strokes far more effective.

While I have shown and described a specific form of my invention, and a specific construction and arrangement of parts, and while I have specified certain material for its construction, it is conceived that other constructions and arrangements of parts may be employed, and other suitable material may be used, and I do not limit myself to any specific construction or arrangement of parts and may alter the construction and arrangement of parts and employ any suitable material, as I desire, without enlarging the scope of my invention, within the appended claims.

And while I have stated that the sleeve is adapted for inflation it will be understood that inflation is required only when pliable walls are employed. Should the walls be sufficiently self supporting then the normal air content would provide the required buoyancy.

In the form of the invention illustrated in Fig. 3, the conical wall extends only a partial distance around the sleeve and a reduced number of ribs are shown. This form of the device may be placed on the arm to arrange the conical wall in correct position according to the nature of the swimmer's stroke.

In the form of the invention shown in Fig. 4 I provide a single sleeve 20 terminating in an integral strap 21; the unit being adapted to be placed over the human foot like a sock. The form of the invention is designed to provide for increased effectiveness of the leg strokes but does not add buoyancy. The cone shape wall decreases in diameter rearwardly so that the maximum resistance is offered when the foot is thrust outwardly from the human body.

I claim,

1. In a device of the character described, a hollow sleeve adapted for air inflation and capable of being placed over the human leg or arm whereby the pressure of air contained therein acts to hold said sleeve in place on the arm or leg.

2. In a device of the character described, a hollow sleeve adapted for air inflation and capable of being placed over the human leg or arm whereby the pressure of air contained therein acts to hold said sleeve in place on the arm or leg, and means carried by said sleeve for offering a resistance greater when the sleeve is moved in one direction through the water, than when said sleeve is moved in the reverse direction through the water.

3. In a device of the character described two axially aligned spaced annular walls connected to each other at each end to provide a fluid tight air space; the inner wall being of substantially constant diameter throughout to provide a central aperture for the insertion of the human leg or arm, and the outer wall being of increasing diameter rearwardly.

4. In a device of the character described, a tube adapted to be placed over the leg or arm, a larger tube of increasing diameter rearwardly encompassing said first named tube and spaced therefrom to provide an intervening annular air space, the forward edges of the tubes being connected to each other directly at an acute angle, and a ring-like end wall connecting the rear ends of said walls to each other and coacting with said walls to render said space air tight.

GEORGE EVANS.