J. REITER.

LIFE SAVING AND SWIMMING APPARATUS.

APPLICATION FILED DEC. 3, 1921.

1,429,773. Patented Sept. 19, 1922.

Fig.-1.

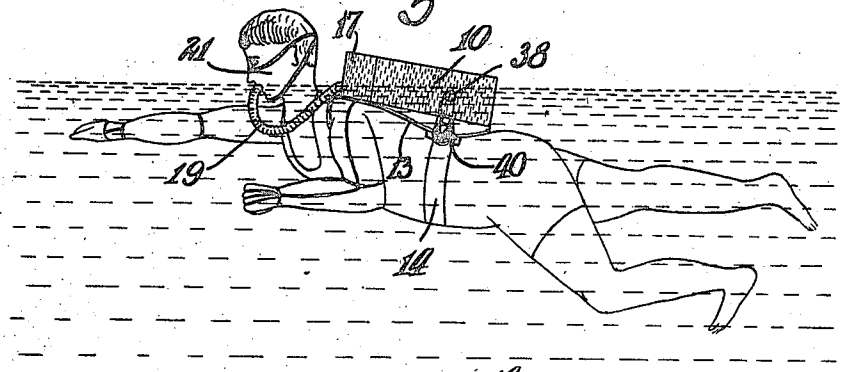


Fig.-2.

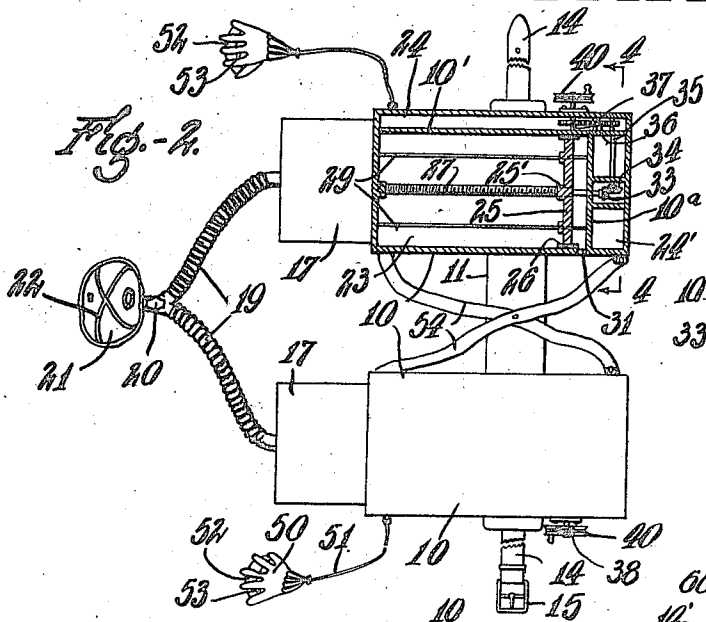


Fig.-4.

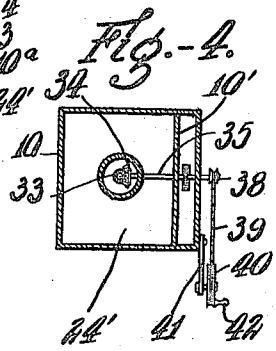


Fig.-3.

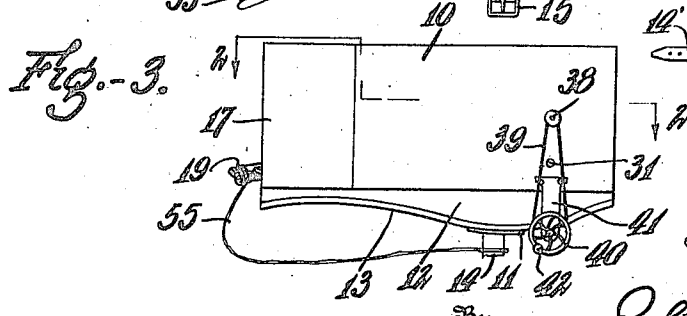
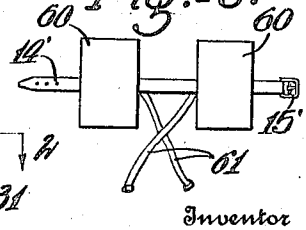


Fig.-5.



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UNITED STATES PATENT OFFICE.

JOSEPH REITER, OF NEW YORK, N. Y.

LIFE-SAVING AND SWIMMING APPARATUS.

Application filed December 3, 1921. Serial No. 519,600.

To all whom it may concern:

Be it known that I, JOSEPH REITER, citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Life-Saving and Swimming Apparatus, of which the following is a specification.

This invention relates to an appliance for use by swimmers which has for a general object to assist in sustaining the user when on the surface of the water, or as an aid in submerging under the water.

A further object is to provide an attachment which assists the swimmer in propelling himself through the water.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

Fig. 1 of the drawings is a side elevational view showing the appliance in position on a swimmer.

Fig. 2 is a part plan and part horizontal sectional view of the appliance alone, the sectional portion of this view being taken along the line 2—2 of Fig. 3.

Fig. 3 is a fragmentary side elevation.

Fig. 4 is a detail transverse section taken on the line 4—4 of Fig. 2.

Fig. 5 is a plan view showing a modified form of the swimming appliance.

As here embodied my improved swimmer's appliance comprises a pair of oblong rectangular boxes 10 which are secured together by a bolt 11 to which each is attached. These boxes are adapted to be held upon the back of the swimmer, having cork padding elements 12 on their under sides which are suitably shaped as indicated in Fig. 3 to conform to the contour of the swimmer's back and are preferably faced with rubber sheeting 13, the belt 11 extending across these pads. This belt 11 has narrowed strap ends 14, one of which is provided with a buckle 15 whereby the belt may be clasped around the waist of the swimmer.

Mounted on the front ends of the boxes 10 are air reservoirs 17 which contain air under pressure and from which flexible tubes 19 lead forward, uniting in a single short tube 20 which connects to a mask 21 of rubber adapted to be fitted closely upon the face of the swimmer, being held thereon by elastic bands 22 looped behind the swimmer's head. The tube 20 may be provided with a suitable valve through which the air is fed as desired from the reservoirs 17 this air supply device not being claimed as part of my invention.

Each of the boxes 10 has a partition 10′ extending along close to the outer side thereof and a second partition 10^a extending along close to the rear end thereof, dividing the box into a main compartment 23 which constitutes a cylinder, and narrow side and end compartments 24 and 24′. Each cylinder compartment has slidably mounted therein a piston or follower 25 having suitable packing 26. These pistons each have hollow central bosses such as 25′ through which are threaded screw shafts 27 extending longitudinally of the cylinder 23 and journaled in the end walls thereof. Each cylinder 23 has also preferably fixed therein a pair of longitudinal guide rods 29 which pass freely through apertured bosses in the pistons 25. Openings such as 31 lead into the rear ends of the cylinders 18.

For rotating the shafts 27 to move the pistons 25 in the cylinders 23 they have fixed on their rear ends (which are located in the end compartments 24′) bevel pinions such as 33 each meshing with a gear 34 fixed on the inner end of a transverse shaft 35 adapted to be driven by a multiplying train of gears indicated generally at 36, from a stub shaft 37 suitably mounted in the side of the box. This stub shaft 37 has fixed thereon a small pulley 38 connected by a belt 39 with a larger pulley 40 mounted on a bracket 41 depending from the side of the box. The pulley 40 has fixed thereto a knob or handle 42 whereby it may be rotated.

To enable the swimmer to propel himself with greater speed through the water a pair of webbed gloves 50 are provided to be worn upon the hands, these gloves 50 being attached by cords 51, of sufficient length to permit of free movement of the swimmer's arms, to the boxes 10. The webs 52 of the gloves 50 preferably have small openings 53 in the crotch parts thereof.

In addition to the belt 11 the boxes 10 may be connected together by the crossed straps 54 and may also be provided at their ends with bands 55 adapted to be engaged around the swimmer's shoulders.

The weight of the appliance is so arranged that the user will be sustained when

the cylinders 23 are empty of water and caused to sink when these cylinders are approximately filled with water. When the swimmer desires to submerge he turns the pulleys 40 by hand, causing rotation to be imparted to the screw shafts 27 to move the pistons toward the front ends of the cylinders, drawing the water in through the openings 31 until sufficient water has entered to cause him to submerge. When he desires to come to the surface he rotates pulleys 40 in an opposite direction, moving the pistons toward the rear ends of the cylinders and expelling the water from the latter.

A modified form of the appliance is shown in Fig. 5, in which the pair of oblong rectangular boxes 10 are replaced by a pair of oblong rectangular reservoirs 60, fixed on strap 14′ which is provided with a buckle 15′ whereby the belt may be clasped around the bust line, and a pair of straps 61 above the shoulders of the swimmer.

Having thus described my invention what I claim as new and desire to protect by Letters Patent of the United States is as follows:

1. In a device of the class described, a pair of cylinders, pistons in said cylinders, means for securing said cylinders on the body of a swimmer, and means for moving said pistons longitudinally in said cylinders said cylinders having ports at one end for the intake and discharge of water as the said pistons are moved in opposite directions.

2. In a device of the class described, a pair of cylinders each having an opening at one end, pistons in said cylinders, means for securing said cylinders on the body of a swimmer, and means for moving said pistons longitudinally in said cylinders, said means comprising screw shafts threaded through said cylinders, and means for rotating said screw shafts.

3. A device of the class described comprising a pair of cylinders open at their rear ends, a belt on which said cylinders are fixed, said belt being adapted to be secured on the body of a swimmer; pistons in said cylinders, screw shafts threaded through said pistons, transverse shafts at the rear of said cylinders, meshing gears on said shafts, and separate devices for individually rotating said transverse shafts.

4. A device of the class described comprising a pair of cylinders open at their rear ends, a belt on which said cylinders are fixed, said belt being adapted to be secured on the body of a swimmer; pistons in said cylinders, screw shafts threaded through said pistons, transverse shafts at the rear of said cylinders, meshing gears on said shafts, and separate devices for rotating the respective transverse shafts, each of said devices comprising a pair of pulleys, a handle on one of said pulleys, a belt looped over said pulleys, a shaft on which the other pulley is mounted, and a multiplying train of gears connecting said last shaft with the said transverse shaft.

In testimony whereof I have affixed my signature.

JOSEPH REITER.