My invention relates generally to water safety devices and is particularly directed to a "snorkel" type underwater breathing device, the design of which permits its use in emergency as a respirator for efficiently performing the mouth-to-mouth technique of artificial respiration.

The mouth-to-mouth technique of artificial respiration is presently the preferred method for resuscitating a person whose natural breathing has stopped because of water immersion or drowning. This technique, however, because it requires mouth-to-mouth contact, is often not quickly enough resorted to by squeamish persons desiring to give first aid, with the result that lives are lost which otherwise would be saved by prompt action.

It is accordingly the principal object of my invention to provide a combination swimming aid and respirator which obviates the need for direct mouth-to-mouth contact, and which at the same time is efficient and easy to apply and use in resuscitating a victim of drowned or electrocution.

Another object is to provide a combination swimming aid and respirator which normally serves as a snorkel, that is, a breathing tube permitting swimming or floating with the face immersed under water, and thus finds wide usage in water sports such as swimming and boating, either as a water toy or as a life protecting device.

A more particular object is to provide a device of the above nature comprising a flexible tubular conduit in ring form and adapted to fit over the head to be worn around the neck, and having a mouthpiece connecting therewith from the inside, and a breathing tube connecting therewith from the outside at a position diametrically opposite the mouthpiece, whereby air can be breathed through the mouthpiece when using the device as a snorkel, and whereby the mouthpiece can conveniently be held in the mouth of a person in need of artificial respiration to permit water to be withdrawn and air to be forced into the lungs by a person applying suction and air pressure, as may be required, to the outer end of the breathing tube.

Yet another object is to provide a device of the above nature which will be compact, fool-proof in operation, and economical to manufacture, yet highly suited to use either as a swimming aid or a respirator.

Other objects, features and advantages of the invention will be apparent from the following description when read with reference to the accompanying drawings.

In the drawings, wherein like reference numerals denote like parts throughout the several views:

FIG. 1 is a side view, with portions broken away, of a combination swimming aid and respirator device embodying the invention;

FIG. 2 illustrates use of the device while swimming with the face under water;

FIG. 3 illustrates use of the device while floating on the back in rough water; and

FIG. 4 illustrates use of the device in giving artificial respiration by the "mouth-to-mouth" technique.

Referring now in detail to the drawings 16 designates, generally, a swimming aid and respirator device embodying the invention, the same comprising generally, a ring-shaped body portion 11, a mouthpiece 12, a breathing tube 13, a water guard 14, a pair of floats 15, 15, and a nose clip 16.

The body portion 11 comprises a pair of opposed semi-circular tubes 18, 19, preferably formed of a synthetic plastic material, the adjacent upper ends of which fit within opposing branches 21, 22, respectively, of a T-fitting 20. The T-fitting 20 has its opposed branches 21, 22, formed with interior annular ribs 24, 26, respectively received within complementary annular recesses 28, 29 formed in the outer walls of the tubes 18, 19, this construction serving as a detent mechanism for retaining said tubes in place, yet allowing rotary movement with respect to the T-fitting for the purpose hereinafter appearing.

The T-fitting 20 is also formed with a wall portion 27 sealing off branch 22 from the remainder of said T-fitting. The outwardly-extending branch 23 of the T-fitting 20 is formed with an interior annular rib 25 for connection with the breathing tube 13, as is hereinbelow more fully described.

The mouthpiece 12 is formed with opposed branches 30, 31 having interior annular ribs 32, 33, respectively, and an interior wall portion 34 sealing off branch 31. The lower opposed ends (see FIG. 1) of the air tubes 18, 19 are formed with respective annular recesses 35, 36 which engage the interior ribs 32, 33 of the opposed branches 30, 31 of the mouthpiece 12, whereby said tubes are held in place while permitting relative rotary motion at the juctions. The mouthpiece 12 is formed with an inwardly-extending branch portion 37, terminating in a bell-shaped end-pinion 38 adapted to be received within the mouth, as is hereinbelow described.

An annular flange 39 is formed about the branch portion 37, about midway along its length, which serves as an abutment or stop for outer portions of the lips when the mouthpiece 12 is held in the mouth during use of the device. A short chain 40, anchored at each end in any convenient manner to end portions of the tubes 18, 19 at each side of the mouthpiece 12, carries the nose-clip 16 for convenience in use, as is hereinbelow more fully explained, and to prevent accidental loss. Lower end portions of the air tubes 18, 19 are formed with accordion-like folds, as indicated at 41 and 42, respectively, to give added flexibility to the mouthpiece end of the device.

The breathing tube 13 comprises a straight, substantially rigid tube 43 formed near one end (the lower end as shown in FIG. 1) with an annular recess 44 received within which is the annular rib 25 in the outwardly-extending branch 23 of the T-fitting 20, whereby said tube is held securely in place in said T-fitting. The tube 43 is formed near its other end with an outer peripheral stop ring 46 which serves as a stop for the water guard 14. As illustrated in FIG. 1, the water guard 14, also preferably molded of a synthetic plastic material, comprises a conical dome portion 47, an integral, inwardly-directed annular wall portion 48 provided with air holes 49, and an outwardly-extending sleeve portion 50, the inner diameter of which is such as to provide a fairly tight sliding fit over the outer end of the tube 43.

The round floats 15, 15 have openings through which the tubes 18, 19 extend, and are slidable therealong for adjustment purposes. Preferably, the floats 15 are fabricated of a synthetic plastic air foam material such as "Styrofoam." An extra nose-clip 16a can be clipped on one of the tubes 18, 19 (tube 19 as illustrated in FIG. 1) for use in case of loss or breakage of the nose-clip 16.

FIG. 2 illustrates use of the device as a "snorkel" type swimming aid when swimming with the face down. The body portion 11 is placed over the head and the mouthpiece 12 is received in the mouth. The nose-clip 16 can be used to close off the nose, if desired, and breathing is effected through the openings 49 in the water guard 14, through the breathing tube 13, the T-fitting 20, the tube 18, and the mouthpiece 12. The floats 15 keep the breathing tube 13 above water, and its rotary position with respect to the body portion 11 can readily be adjusted for best performance. The flexible portions 41, 42 of the
tubes 18, 19 near the mouthpiece and permit considerable face movement without adversely affecting the out-of-water position of the upper end of the breathing tube 13. The water guard 14 sheds water occasioned by splashing or waves, preventing its entrance into the breathing tube 13. The sealing off of tube 19 by means of the wall portions 27, 34 in the T-fitting 20 and mouthpiece 12, simplifies blowing out any water that might find its way into the device in rough water.

FIG. 3 illustrates use of the device while floating with the head up. The device used in this manner can be an aid in life saving, as it permits a person, even if a non-swimmer, to breathe while perfectly relaxed in the water. It also finds use by swimmers undertaking lengthy swims, either by choice or through accident, permitting them to rest from time to time to regain strength.

FIG. 4 illustrates use of the device in giving artificial respiration to a victim of arrested breathing. In this use of the device, the body portion 11 is placed over the head of the victim and the mouthpiece 12 inserted and held in the victim's mouth, as illustrated, after first having clipped the nose-clip 16 over the victim's nose. The water guard 14 will have been pulled off, and the person administering the artificial respiration proceeds first by sucking water out of the victim's lungs, when necessary, and then breathing in and out as done in the mouth-to-mouth technique of artificial respiration. It is to be noted that air passages of the device are long enough and large enough so that water sucked from the victim's lungs will not reach the person giving aid, and can be allowed to flow out of the mouthpiece end by its temporary removal just prior to instituting the air breathing.

When not in use, the device can be compacted for storage simply by turning the air tube 13 inwardly, as illustrated by the broken line representation thereof in FIG. 1.

While I have illustrated and described herein only one form in which my invention can conveniently be embodied in practice, it is to be understood that this form is presented by way of example only and not in a limiting sense. In short, my invention includes all the forms and embodiments coming within the scope of the following claim.

What I claim as new and desire to secure by Letters Patent is:

A combination swimming aid and respirator device comprising, in combination, a tubular ring-shaped body member, an air passageway extending in one direction only along and within said body member between diametrically opposed zones thereof, wall portions within said body member blocking the flow of air by the other direction and within said tubular body member, a substantially straight breathing tube, a connector fitting interconnecting one end of said breathing tube with said body member, the interior of said breathing tube communicating one end of said body member air passageway through said connector fitting, a mouthpiece member having an internal air passageway, means connecting said mouthpiece member with said body member at a location substantially diametrically opposite said breathing tube, said air passageway in said mouthpiece communicating with the other end of said body member passageway, a pair of float members attached to said ring-shaped body member at each side of said breathing tube, a splash guard having breathing holes removably fitted over the outer end of said breathing tube, said breathing tube connector fitting comprising a T-fitting having a pair of opposed branches and an outwardly-extending branch, said ring-shaped member comprising a pair of tubes, one end of each of which is received in one each of said opposed branches, said tube ends being rotatively movable in said opposed branches, said mouthpiece member connecting means comprising a pair of opposed mouthpiece branches, said other ends of said tubes being rotatively movable in said opposed mouthpiece branches, said tubes each being provided, near said other ends, with accordion-like sections of increased flexibility.

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