United States Patent [19]

Taunton

[11] **3,908,647**

[45] **Sept. 30, 1975**

[54] **SHALLOW WATER BREATHING APPARATUS**

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[22] Filed: **May 22, 1974**

[21] Appl. No.: **472,348**

[52] **U.S. Cl.** ..... **128/145 A**

[51] **Int. Cl.**[2] **A62B 7/00**

[58] **Field of Search** ..... 128/145 A, 145 R, 146.3, 128/146.4, 142, 140 R, 205–208, 211, 139

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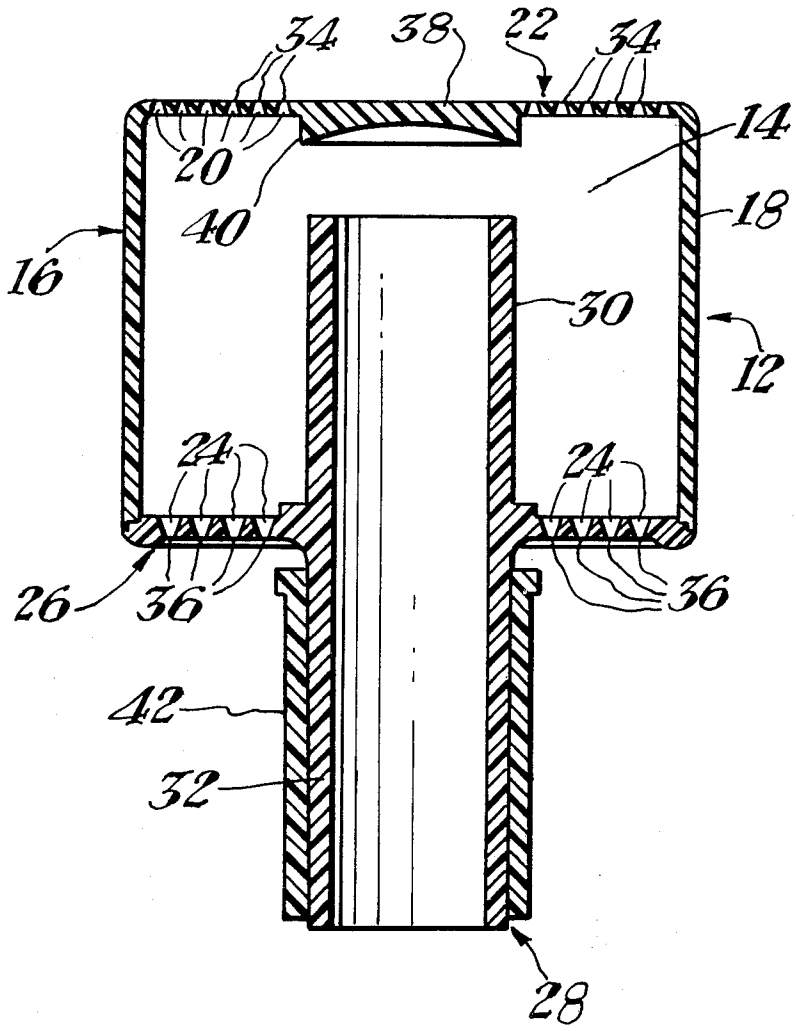
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Assistant Examiner—Henry J. Recla

[57] **ABSTRACT**

The breathing apparatus includes a breathing tube fitted at one end with a mouthpiece and at the other with a valve means having an opening that admits air when projecting above the surface of a body of water. The breathing apparatus is used by swimmers near the surface of the water when the swimmer's head is under water. The valve means includes a housing with a compartment therein. The housing has closed sides, a top with a plurality of small openings therethrough and a bottom with a plurality of larger openings therethrough. The openings provide passages to and from the compartment. The housing also incluses a tubular means projecting through the bottom of the housing with an internal distal end spaced a short distance below the top of the compartment and an external projecting portion connected to the breathing apparatus tube.

4 Claims, 5 Drawing Figures



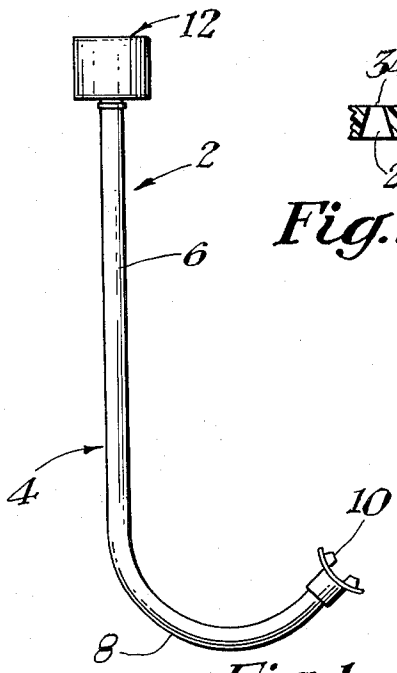


Fig. 1.



Fig. 2a

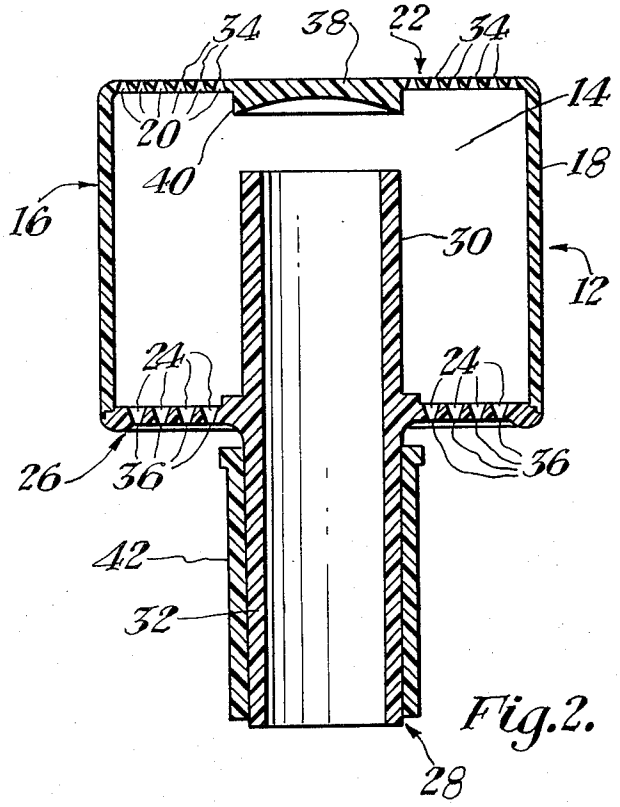


Fig. 2.

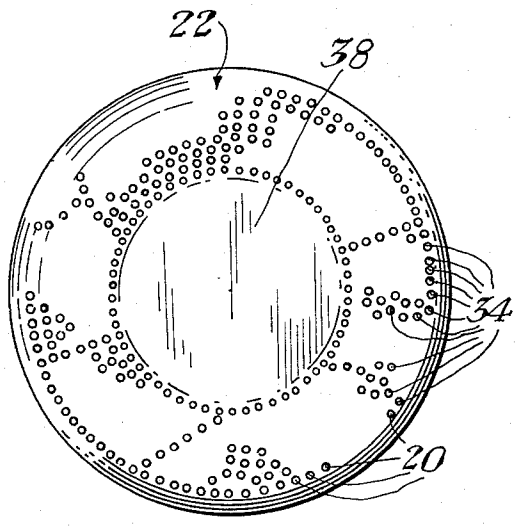


Fig. 3.

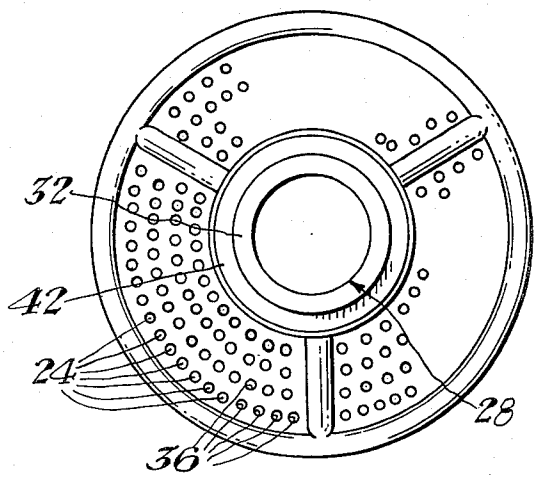


Fig. 4.

SHALLOW WATER BREATHING APPARATUS

BACKGROUND OF THE INVENTION

This invention relates to a new and improved valve means for a shallow water breathing apparatus.

Prior art snorkel devices utilized a movable ball as a closure valve. The ball is placed in a cage attached to the top of the snorkel. The ball closes the air tube when the cage moves below the surface of the water. Another type of snorkel device utilizes an upper U-shaped tube to prevent wave water from entering directly into the intake of the snorkel when it is above the surface of the water. The most commonly used snorkel device provides no valve means at the top of the breathing tube to prevent water from entering the tube.

BRIEF DESCRIPTION OF THE INVENTION

The breathing apparatus includes a breathing tube fitted at one end with a mouthpiece and at the other with a valve means having openings that admit air when the valve projects above the surface of a body of water and prevents wave water from entering the apparatus when a wave passes over the valve. The valve means includes a housing with a compartment therein, closed sides, a plurality of small holes or openings in the top, and a plurality of larger holes or openings in the bottom. The housing also includes a tubular means projecting through the bottom of the housing with an internal distal end spaced a short distance below the top of the compartment and an external projecting portion connected to the breathing apparatus tube.

The plurality of small holes or openings in the top of the housing are generally cone shaped with the smaller diameter opening adjacent the external surface of the top of the housing and the larger diameter opening adjacent the internal surface of the top of the housing. The plurality of openings in the bottom of the housing are generally cone shaped having the smaller diameter adjacent the external surface of the bottom of the housing and the larger diameter opening adjacent the internal surface of the bottom of the housing. A plurality of holes ring the tubular means projecting through the bottom of the housing or container. The plurality of small openings in the top of the container ring an air tube shield means centrally located in the top of the container. The air tube shield means projects inwardly into the container compartment having a distal drip edge adjacent the circumference of the air tube shield means.

It is an object of this invention to provide a shallow water breathing apparatus having a generally straight tube portion terminating in a valve means that allows a diver to breathe normally when the upper end of the tube is at the surface of the water and a portion of the valve means, less than half an inch in height, projects above the surface of the water.

It is another object of this invention to provide a valve means having no moving parts that protects the end of the air tube of the breathing apparatus from the wave water entering the tube.

Another object of this invention is to provide tapered hole construction in the valve means to retard the inflow of water into the compartment.

Another object of this invention is to provide a quick draining valve means.

Another object of this invention is to provide a water filtering valve means.

Another object of this invention is to provide a valve means on a shallow water breathing apparatus that will allow air to be drawn into the breathing tube from the bottom or top of said valve means.

An additional object of this invention is to provide smaller holes through the top of the valve means housing to retard water from entering the valve means compartment when a portion of the valve means is above the surface of the water.

In accordance with these and other objects which will be apparent hereinafter, the instant invention will now be described with particular reference to the illustrated embodiments in the accompanying drawing. The illustrated embodiment is not meant to limit the claimed subject matter in this invention.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. **1** is a side view of the shallow water breathing apparatus;

FIG. **2** is a cross sectional side view of the valve means;

FIG. **2***a* is an enlarged view of the top wall of the valve means;

FIG. **3** is a top view of the valve means; and

FIG. **4** is a bottom view of the valve means.

DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

Referring now to the drawing, FIG. **1**, the breathing apparatus **2** includes a breathing tube **4** with a straight portion **6** and a U-shaped portion **8.** The resilient U-shaped portion normally holds the mouthpiece **10** in a position parallel to straight portion **6.** Fitted at one end of the tube **4** is a mouthpiece **10** and at the other end of the tube **4** is a valve means **12,** the valve means **12** has openings that admit air when the valve means projects above the surface of a body of water. The valve means **12** is used by swimmers near the surface of the water with the swimmer's head under water.

The valve means **12,** shown in FIG. **2,** includes a compartment **14** in housing **16.** The housing has closed sides **18** with a plurality of small openings **20** in the top **22** and a plurality of larger openings **24** in the bottom **26** to provide access into and out of the compartment. The housing also includes a tubular means **28** projecting through the bottom **26** of the housing **16** with an internal distal portion **30** spaced a short distance below the top of the housing and an external projecting portion **32** connected to the breathing apparatus tube.

The plurality of small openings **20** in the top **22** of the housing **16** are generally cone shaped with the smaller diameter opening **34** adjacent the external surface of the top of the housing. The plurality of openings **24** in the bottom of the housing are generally cone shaped having the smaller diameter **36** adjacent the external surface of the bottom of the housing. As shown in FIG. **4,** the plurality of holes **24** ring the tubular means **28** projecting through the bottom of the housing or container **16.** The plurality of small openings **20** in the top of the container, as shown in FIG. **3,** ring an air tube shield means **38** centrally located in the top of the container. The air tube shield means projects inwardly into the compartment having a distal drip edge **40** adjacent the circumference of the air tube sheild means **38.**

A spacer tube **42** may be placed around the tube member **32** in order to connect the valve means **12** to

tube **4.** Spacer tube **42** may be removed in order to connect the valve means to a tube having smaller inside diameters.

The opening in the top may have an outside diameter or width of 0.025 inches, plus or minus 0.020 inches and an inside diameter of 0.035 inches, plus or minus 0.010 inches. The openings in the bottom may have an outside diameter or width of 0.050 inches, plus or minus 0.010 inches and an inside diameter of 0.080 inches, plus or minus 0.010 inches. The inside distal end of the tubular means **30** may be spaced a short distance from the top **22.** The dimensions set forth in this disclosure are not meant to narrow the claims in this case except where specifically stated.

The instant invention has been shown and described herein in what is considered to be the most practical and preferred embodiment at this time. It is recognized, however, that departures may be made therefrom within the scope of the invention and that obvious modification will occur to a person skilled in the art. Where means are claimed the applicant intends to include all devices that perform the functions set forth.

What I claim is:

1. A breathing tube apparatus means comprising;

a housing with a compartment, said housing having side surfaces, a top surface, and a bottom surface,

said top surface includes a plurality of openings having a diameter of 0.025 inches, plus 0.005 inches or minus 0.010 inches for allowing air to pass into and out of the compartment,

said bottom includes a plurality of openings of substantially larger diameter than the diameter of said top openings for allowing water to pass into and out of the compartment, and

a breathing tube connecting means having an open end projecting into the compartment, said open end being spaced from said top surface and above said bottom surface.

2. A breathing tube apparatus means as set forth in claim **1** wherein,

the top openings through the top have a smaller external perimimeter than the inner perimeter.

3. A breathing tube apparatus means as set forth in claim **2** wherein,

said openings are cone shaped with the smaller perimeter adjacent the external surface of said housing, and

said distal internal end of said breathing tube connecting means is spaced a short distance from the inside surface of the top of the housing.

4. A breathing tube apparatus means, as set forth in claim **3,** including;

a shield means connected to said compartment top,

said bottom openings are cone-shaped with the smaller perimeter adjacent the external surface of said housing, said bottom openings are larger than said top openings,

said top openings surround said shield means positioned over said inner distal end of said breathing tube connecting means.

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