March 21, 1961 W. BENTLEY 2,975,439

TOY SCUBAS

Filed March 16, 1959

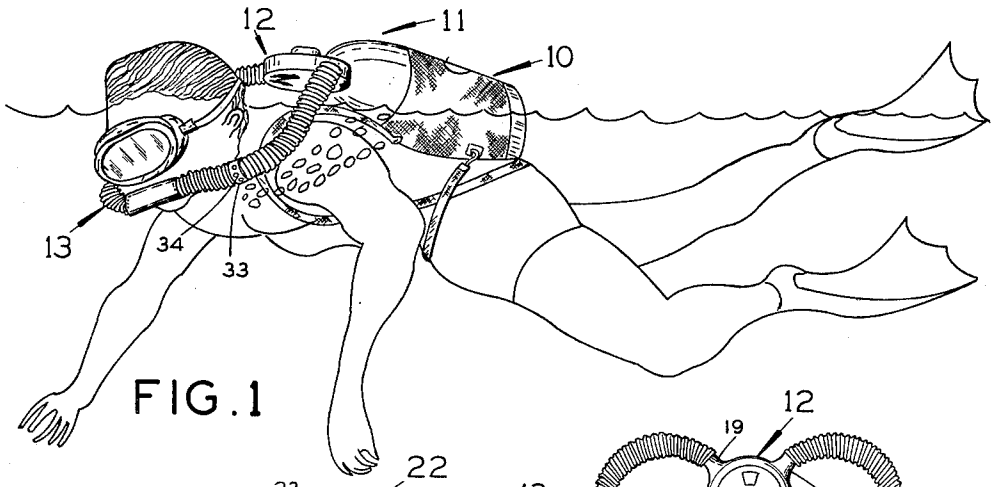


FIG. 1

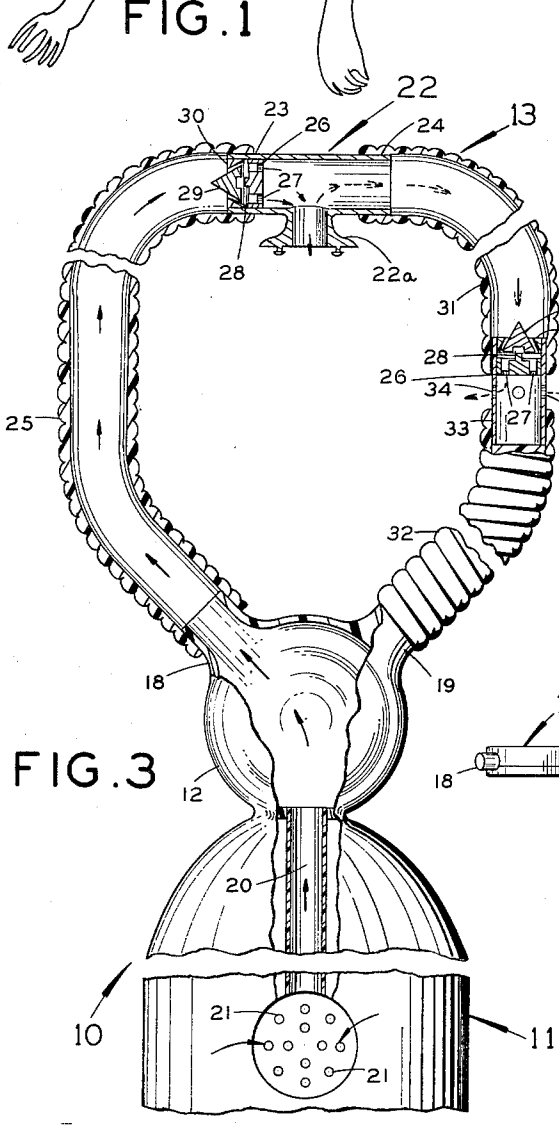


FIG. 3

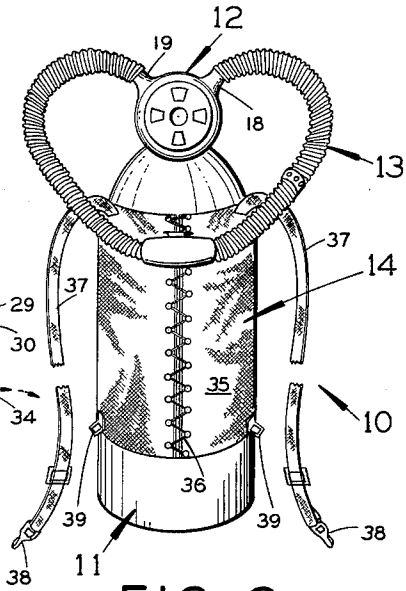


FIG. 2

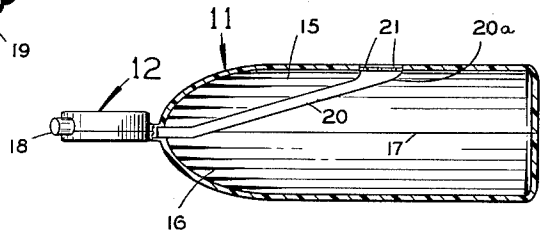


FIG. 4

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6 Claims. (Cl. 9—313)

My invention relates generally to scuba (self-contained underwater breathing apparatus) and is directed particularly to a toy scuba apparatus that simulates in appearance and, in certain respects, the action of a real scuba.

The principal object of my invention is to provide a toy scuba including a simulated air tank, harness, regulator, breathing hoses and mouthpiece, wherein the air tank acts as a float to normally keep the user face down at the surface of the water, and wherein intake air passage means extends from an uppermost portion of the air tank through the air intake hose and mouthpiece, whereby the toy equipment acts as a snorkel for underwater observation and exploration while the user is partly submerged at the surface.

A more particular object of my invention is to provide a toy scuba of the above nature including a check valve in the air intake line to prevent the return passage of exhaled air, and air escape means in the exhaust hose for the release of exhaled air, whereby the rhythmical underwater bubbling sound and appearance of exhaust air characteristic of real scuba will be faithfully simulated.

Still another object of my invention is to provide a scuba toy of the character described which, because of its buoyancy, aids in teaching children to swim, and which further can be used as a primary aid in breathing control for real scuba equipment.

Yet another object of my invention is to provide a toy scuba of the above nature which can readily be molded of a soft synthetic plastic, which will be light in weight and devoid of sharp corners and protrusions, and which can be inexpensively manufactured in various sizes to fit different age groups of children with a minimum of easily-assembled parts.

Other objects, features and advantages of my invention will be apparent from the following description when read with reference to the accompanying drawings. In the drawings, wherein like reference numerals denote corresponding parts throughout the several views:

Fig. 1 is a pictorial representation of a swimmer using the toy scuba embodying the invention,

Fig. 2 is a front elevational view of the toy scuba shown separately,

Fig. 3 is an enlarged, rear elevational view of the toy scuba, with portions broken away and portions shown in section, illustrating details of the breathing hose system, and

Fig. 4 is a cross-sectional view of the tank and regulator portion of the toy scuba illustrating details of the snorkel air intake conduit.

Referring now in detail to the drawings, the toy scuba, indicated generally by reference numeral **10**, comprises a tank **11**, a simulated regulator **12** preferably integrally formed therewith, a flexible breathing hose and mouthpiece assembly **13**, and a harness **14** laced to the tank and equipped with straps for securing the toy scuba to the user.

The tank **11** and simulated regulator **12** are preferably molded of a soft, synthetic plastic, such a polyethylene,

and may for example be molded in the form of longitudinal half-shell portions **15, 16** (see Fig. 4) which are cemented or otherwise sealed together along their parting line **17** to form an airtight tank. The simulated regulator **12**, as illustrated in Figs. 2 and 3, is formed at its outer end with a pair of divergent hose nipples **18, 19**, nipple **19** of which is formed solid, and therefore sealed against the interior of the simulated regulator **12** and the tank **11**. Fitted and sealed within the interior neck opening between the tank **11** and the simulated regulator **12** and extending through the interior of said tank is a snorkle breathing conduit **20**, also preferably of polethylene plastic, which terminates in communication with a plurality of air intake openings **21** formed in the upper half shell portion **15** of the tank **11** about midway along the length of the tank. The use of the plurality of small air intake openings **21** minimizes the possibility of floating debris fouling the snorkel breathing conduit **20**. The conduit **20** is preferably flared into funnel shape, as at **20*a***, where it connects with the intake openings **21**.

The breathing hose and mouthpiece assembly **13** comprises a hollow, T-shaped mouthpiece assembly **22**, preferably also of polyethylene plastic, formed with a central mouthpiece portion **22*a***, a tubular air intake end portion **23** and a tubular air exhaust portion **24**. A flexible air intake hose **25**, preferably also molded of a soft plastic, interconnects the nipple **18** of the simulated regulator **12** and the air intake end portion **23** of the mouthpiece **22**. Check valve means is provided in the mouthpiece assembly **22** to prevent air inhaled through the snorkel tube **20** and the air intake hose **25** from being exhausted through the same route. To this end, the air intake end portion **23** of the mouthpiece assembly **22** is fitted with an internal disc **26** formed with a plurality of circularly arranged openings **27** and a central cylindrical spacer hub **28**, a conical valve member **29** arranged in axially-spaced relation from the disc **26** and having a central guide opening riding on the spacer hub **28** and a valve seat member **30** formed with a conical valve seat complemental in shape to the conical valve member **29**. As illustrated by the full-line air flow arrows in Fig. 3, when air is inhaled by the user through the mouthpiece **22** it will be drawn through the intake openings **21** in the tank, by way of the snorkel tube **20**, the hollow simulated regulator **12**, the nipple **18**, the air intake hose **25** and the above-described check valve.

A two-section flexible air exhaust hose **31, 32**, similar to the air intake hose **25**, interconnects the blind nipple **19** of the simulated regulator **12** and the air exhaust end portion **24** of the mouthpiece **22**. Spliced between the lengths of the exhaust hose **31, 32** is a tubular exhaust valve member **33** having a plurality of side openings **34** circularly arranged about a central portion thereof. The spliced ends of the exhaust hose **31, 32** fit over the ends of the exhaust valve member **33**, but extend short of the side openings **34** therein to allow free passage of air. The mouthpiece assembly and of the exhaust valve member **33** is provided with check valve means preventing water intake through the openings **34**, said check valve means being identical in structure to the check valve described above in the mouthpiece assembly **22**. It will thus be apparent that air can only be breathed in through the snorkel tube **20**, and exhaled or exhausted only through the openings **34** in the exhaust valve member **33**, as indicated by the broken line arrow representation of exhaust flow in Fig. 3. Since, as illustrated in Fig. 1, the exhaust valve member **33** will ordinarily be under water when the toy scuba is used in snorkeling, exhaled air will be vented underwater through the openings **34** of the exhaust valve member to

simulate the rhythmical bubbling sound and appearance of exhaust air in real scuba equipment.

The harness 14 preferably comprises a band of canvas 35 laced to the tank 11 along the underside thereof by lacing 36. Secured at the upper end of the canvas band 35 are a pair of adjustable canvas straps 37 adapted to fit over the shoulders and under the legs of the user and having snap clips 38 at their extremities adapted to lock into hook eyes 39 secured at each side at the lower end of said canvas band.

One advantage of the toy scuba according to my invention is that it enables the user to explore the bottom of a river, lake, pool or ocean without lifting his head out of the water to draw in a breath of fresh air, whereby his eyes will not have to continually readjust between the dimness of the water and the brightness of the sun.

Another advantage of the toy scuba according to my invention besides its use as a toy is that it can be used as a safety float strapped to a child while playing around swimming pools, in boats, and in other areas where there is danger of the child falling into the water.

Another advantage resides in its use as an aid in learning to swim, as it serves to supply a non-swimmer with air while his head is under water.

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

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

1. In a toy scuba, the combination comprising, a float member, means for securing the float member to the user's back, air conduit means secured to said float member and providing an air inlet opening at one end, a flexible air intake hose, said air intake hose communicating at one end with the other end of said air conduit means, a breathing mouthpiece connected to the other end of said air intake hose and adapted to be held in the mouth for breathing air from said air inlet opening and through said air conduit means and said air intake hose for snorkeling, a check valve in the breathing passage comprising said mouthpiece said air intake hose and said conduit means, for preventing the return passage of exhaled air therethrough, said check valve being arranged in said mouthpiece, said check valve comprising a disc member formed with a plurality of circularly arranged openings and an axial spacer hub, a conical valve member coaxially arranged with said disc member and having an axial recess riding on said spacer hub, and an annular valve member coaxially arranged with said conical valve member and having a conical valve seat complemental in shape to said conical valve member, said conical valve member being axially movable into and out of seating engagement with said valve seat.

2. In a toy scuba, the combination comprising, a float member, means for securing the float member to the user's back, air conduit means secured to said float member and providing an air inlet opening at one end, a flexible air intake hose, said air intake hose communicating at one end with the other end of said air conduit means, a breathing mouthpiece connected to the other end of said air intake hose and adapted to be held in the mouth for breathing air from said air inlet opening and through said air conduit means and said air intake hose for snorkeling, a check valve in the breathing passage comprising said mouthpiece said air intake hose and said conduit means, for preventing the return passage of exhaled air therethrough, a flexible exhaust hose communicating at one end with said mouthpiece, the other end of said exhaust hose being sealed off and supported by said float member, and an exhaust check valve in said exhaust hose and having an exhaust opening allowing free passage of exhaust air, said exhaust check valve being arranged to prevent breathing of water through said exhaust opening, whereby air expelled through said exhaust hose and exhaust valve during underwater breathing by the user will be rhythmically bubbled through said exhaust opening to simulate the sound of a real scuba.

3. A toy scuba equipment comprising, in combination, a buoyant float in the form of a tank, a flexible air intake hose, air inlet means in said tank, air conduit means extending through said tank and communicating at one end with said air inlet means in said tank, said air intake hose communicating at one end with the other end of said air conduit means, a breathing mouthpiece connected to the other end of said air intake hose and adapted to be held in the mouth for breathing air from said air intake means and through said air conduit means and said air intake hose for snorkeling, a check valve in the breathing passage comprising said mouthpiece said air intake hose and said conduit means, for preventing the return passage of exhaled air therethrough, a flexible exhaust hose communicating at one end with said mouthpiece, the other end of said exhaust hose being sealed off and supported by said tank, and an exhaust check valve in said exhaust hose and having an exhaust opening allowing free passage of exhaust air, said exhaust check valve being arranged to prevent breathing of water through said exhaust opening, whereby air expelled through said exhaust hose and exhaust valve during underwater breathing by the user will be rhythmically bubbled through said exhaust opening to simulate the sound of a real scuba equipment.

4. A toy scuba equipment comprising, in combination, a buoyant float in the form of a tank, a flexible air intake hose, air inlet means in said tank, air conduit means extending through said tank and communicating at one end with said air inlet means in said tank, said air intake hose communicating at one end with the other end of said air conduit means, a breathing mouthpiece connected to the other end of said air intake hose and adapted to be held in the mouth for breathing air from said air inlet means and through said air conduit means and said air intake hose for snorkeling, a check valve in the breathing passage comprising said mouthpiece said air intake hose and said conduit means, for preventing the return passage of exhaled air therethrough, said check valve being arranged in said mouthpiece and comprising a disc member formed with a plurality of circularly arranged openings and an axial spacer hub, a conical valve member coaxially arranged with said disc member and having an axial recess riding on said spacer hub, and an annular valve member coaxially arranged with said valve member and having a conical valve seat complemental in shape to said conical valve member, said conical valve member being axially movable into and out of seating engagement with said valve seat.

5. In a toy scuba, the combination comprising, a float member, means for securing the float member to the user's back, air conduit means secured to said float member and providing an air inlet opening at one end, a flexible air intake hose, said air intake hose communicating at one end with the other end of said air conduit means, means connected to the other end of said air intake hose for breathing air from said air intake means and through said air conduit means and said air intake hose for snorkeling, a check valve in the breathing passage comprising said breathing means said air intake hose and said conduit means, for preventing the return passage of exhaled air therethrough, a flexible exhaust hose communicating at one end with said breathing means, the other end of said exhaust hose being sealed off and supported by said float member, and an exhaust check valve in said exhaust hose and having an exhaust opening allowing free passage of exhaust air, said exhaust check

valve being arranged to prevent breathing of water through said exhaust opening, whereby air expelled through said exhaust hose and exhaust valve during underwater breathing by the user will be rhythmically bubbled through said exhaust opening to simulate the sound of a real scuba.

6. The toy scuba as defined in claim 2 wherein said float member comprises a hollow cylindrical tank formed at one end with a simulated regulator.

References Cited in the file of this patent

UNITED STATES PATENTS

1,494,834	Hack	May 20, 1924
2,780,224	Wallace	Feb. 5, 1957
2,865,369	Kline	Dec. 23, 1958

FOREIGN PATENTS

212,610	Australia	Feb. 10, 1958
1,177,002	France	Dec. 1, 1958