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SWIMMING AND DIVING AID

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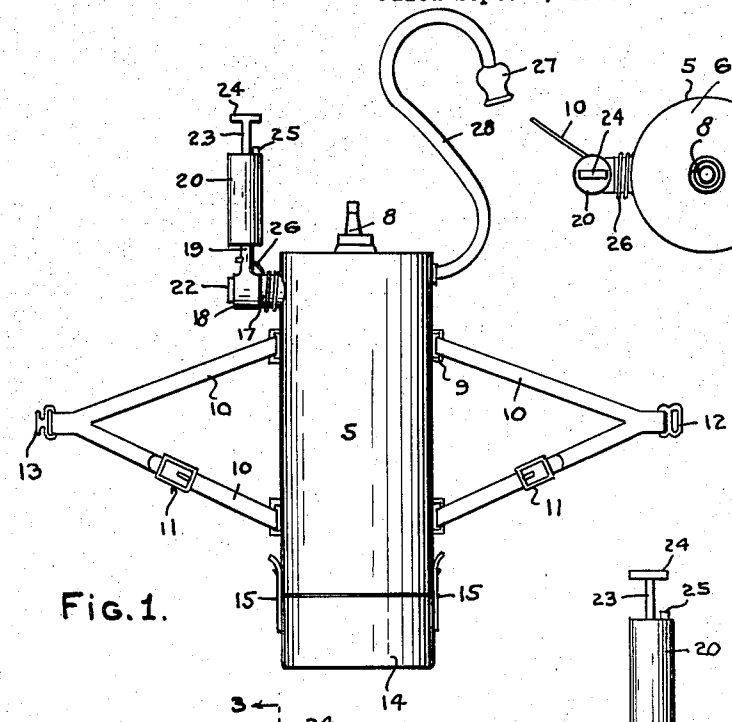


Fig. 1.

Fig. 4.

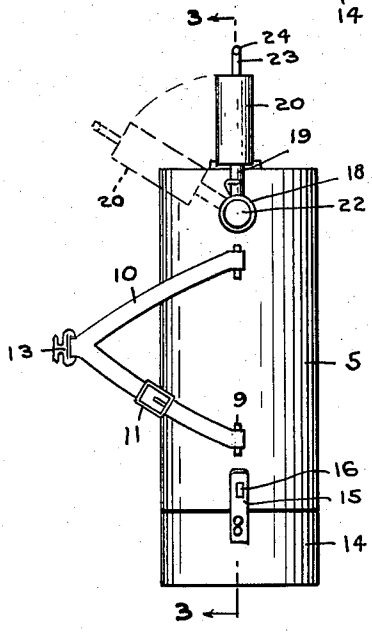


Fig. 2.

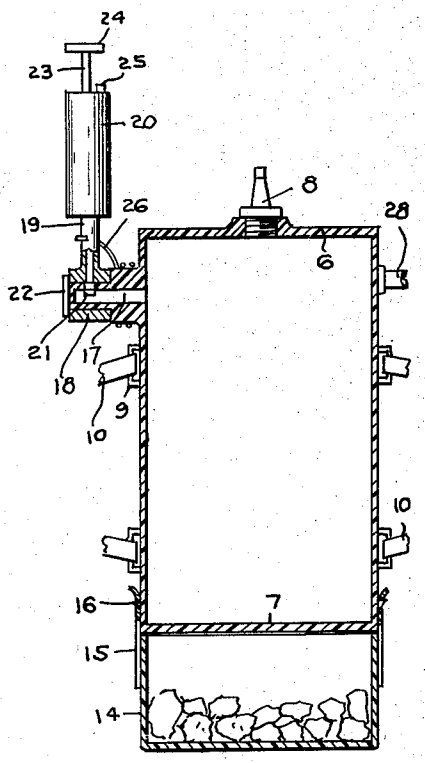


Fig. 3.

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SWIMMING AND DIVING AID

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This invention relates to a swimming and diving aid and whereby to furnish a source of compressed air that permits a swimmer or the well known skin divers to remain submerged for predetermined periods and with the device permitting the individual to breathe during the submersion.

The device contemplates a tank for the reception of a predetermined pressurized medium, such as air and with the tank being equipped with a harness whereby it may be supported upon the back of the swimmer and with the tank being provided with an additional hand operated air pump whereby the diver may ascend and manually replenish the air in the tank.

A further object in the invention resides in a tank that is formed of light weight material, such as plastic and with the tank being provided with a flexible outlet hose that is provided upon its free end with a pressure-operated mouthpiece that is operable by the teeth of the user to release air therefrom for breathing purposes.

A further object of the invention resides in a ballast receptacle that is detachably connected to the lower end of the tank and whereby to receive ballast, such as rocks or stones and whereby to overcome to a large extent the buoyancy of the tank that would normally interfere with the diving operation.

Novel features of construction and operation of the device will be more clearly apparent during the course of the following description, reference being had to the accompanying drawings wherein has been illustrated a preferred form of the device and wherein like characters of reference are employed to denote like parts throughout the several figures.

In the drawings:

Figure 1 is a rear elevation of a device constructed in accordance with the invention,

Figure 2 is a side elevation thereof,

Figure 3 is a vertical section taken substantially on line 3—3 of Figure 2 and,

Figure 4 is a top plan view of the device.

Referring specifically to the drawings, the numeral 5 designates a preferably plastic cylindrical tank, closed at its upper and lower ends as at 6 and 7. The upper end 6 is provided with a conventional and removable valve device 8 whereby a source of compressed air may be connected to the tank for pressurizing the same and with the valve device also being removable for purposes of draining any possible accumulation of moisture in the tank that may be due to temperature changes in the use of the device. Opposite sides of the tank are provided with fixed loops 9 at spaced apart points in its height for receiving the ends of flexible harness forming straps 10. The straps 10 may be provided with adjustable buckles 11 to make the device adjustable to various individuals. The straps 10 are joined at their forward ends and one strap is provided with an open loop 12, while the opposite strap is provided with a hook 13 and whereby to facilitate the connecting engagement of

the straps in supporting the tank upon the back of the user.

Adapted to have detachable engagement with the lower end of the tank is a ballast receptacle 14 that is open at its upper end and that has concentric engagement with the tank. Flexible straps 15 are slotted at their upper ends for engagement with lugs 16 carried by the tank and with the lower ends being riveted or otherwise fixedly connected to the receptacle 14. Thus, the receptacle 14 may be readily removed and filled with ballast of suitable weight to overcome the buoyancy of the tank 5.

The tank 5 adjacent its upper end and upon one side is provided with a tubular nipple 17, and with the nipple communicating with the interior of the tank 5. Rotatably supported upon the nipple 17 is a collar 18 carried by a tube 19, rigidly formed upon a relatively small hand pump 20. The tube 19 communicates with the nipple 17 to a slot 21 and the collar 18 is rotatably supported upon the nipple against displacement by a collar 22. The pump 20 is a conventional air pump having a plunger rod 23 and a handle 24 through the medium of which the plunger normally is disposed within the pump barrel 20 and may be reciprocated. The pump at its upper end carries an entry valve 25 through the medium of which air may be sucked into the pump when the plunger is elevated and that will automatically close when the plunger is forced downwardly to prevent the entry of water into the pump barrel. The collar 18 is normally biased rearwardly by a coil spring 26 and whereby the pump is normally disposed in a position that will not interfere with the use of the device by the operator. The rearward movement of the pump will be limited by suitable stop mechanism.

In the use of the device, the operator supports the device upon his back, by shoving his arms through the harness straps 10, with one strap being over the shoulder while the other strap encircles the body below the arms and is such position, the hook devices 12 and 13 are engaged, thus securely mounting the device upon the back. When diving, assuming first that the tank 5 has been charged to a predetermined pressure of air, the operator places the mouthpiece 27 of the flexible hose 28 into his mouth and grips the same with the teeth. He then proceeds to dive and may remain submerged for a predetermined period, frequently opening the mouthpiece 27 by pressure of the teeth to permit the passage of air for breathing purposes. The mouthpiece 27 will effectively prevent the flow of air from the tank in the absence of pressure thereon by the teeth. Should the operator substantially exhaust the air from the tank 5, he may swim to the surface and then, reaching rearwardly, pulls the pump barrel 20 forwardly so that he can manipulate the handle 24 and pump an additional amount of air to the tank. This operation may be repeated from time to time after the air in the tank 5 has been exhausted. It is customary in devices of this nature that the tank 5 be previously charged before engaging in skin diving or similar diving operations. When the operator releases the pump 20, the spring 26 will immediately swing it rearwardly out of the way so that it will provide no obstruction to the free manipulation of the diver's actions in the water.

It will be apparent from the foregoing that a very novel form of swimming and diving aid has been provided that will provide a suitable source of air for breathing purposes. The structure is simple, is strong, durable, cheap to manufacture and most effective for the purposes indicated. The materials employed will obviously be of any desirable type and calculated to resist corrosion.

It is to be understood that the invention is not limited to the precise construction shown, but that changes are

contemplated as readily fall within the spirit of the invention as shall be determined by the scope of the subjoined claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A swimming and diving aid of the character described that comprises a tank for the reception of pressurized air, valve means for filling the tank, flexible harness straps adapted to engage the body of the user and whereby to support the tank upon the back, coupling means for each of the harness straps for engagement when the harness encircles the body, an auxiliary pump device connected to the tank and with the pump device being hand operated, the pump device being pivotally supported with respect to the tank and whereby it may be swung forwardly by the user for manually forcing air into the tank, means for swinging the pump rearwardly with respect to the user of the device, a flexible hose leading from the tank, a mouthpiece to be engaged by the teeth of the operator and with the mouthpiece controlling the flow of the pressurized air from the tank under the influence of a biting action upon the mouthpiece and a detachable ballast receiving receptacle connected upon the lower end of the tank and whereby to counteract the buoyancy of the tank in the water.

2. A swimming and diving aid and whereby to furnish air to a swimmer or diver for breathing purposes, comprising a cylindrical tank that is closed at its opposite ends, a valved device detachably connected at the upper end of the tank and whereby the tank may receive a source of air pressure, an auxiliary hand pump that is pivotally supported upon the tank to swing rearwardly and forwardly, a piston rod and a handle for actuating the pump, spring means for urging the pump rearwardly, the said pump being swingable forwardly by the operator against the tension of the spring and whereby to dispose

the pump in a position for manual operation by the user of the device, flexible harness straps connected to the tank and that are adapted to engage about the body of the user to support the tank and the pump upon the back, coupling means carried by the harness straps whereby to secure the harness at the forward side of the user, a flexible air line leading from the tank, a mouthpiece at the free end of the said line, the said mouthpiece functioning to prevent the escape of air, the said mouthpiece adapted to be between the teeth of the user and whereby a biting pressure upon the mouthpiece will release the pressurized air to the user for breathing purposes, a cylindrical receptacle supported upon the lower end of the tank, flexible clip devices for supporting the receptacle in detachable engagement with the tank, the said receptacle adapted to receive weighted objects and whereby to overbalance the buoyancy of the tank when the swimmer or diver is in a submerged position.

3. The structure according to claim 2 wherein the harness comprises upper and lower straps that are convergent toward each other to be connected together for forming a pair of harness devices and that define openings for the passage of the arms of the operator, one harness device embodying a hook device and the other harness device embodying a loop for the reception of the hook and whereby the harness may be connected at a point forwardly of the body of the user, the said harness device being adjustable, the said pump device under the influence of the spring being biased to a point rearwardly of the body of the user to be disposed in a manner that will not interfere with the operation of swimming or diving.

References Cited in the file of this patent

FOREIGN PATENTS

438,980 Great Britain ---------- Nov. 27, 1935