FLOATING STATION FOR AQUATIC EXERCISES

The invention relates to the technical field of swimming pools.

More especially, the problem which the invention aims to solve is to create a delimited aquatic area to allow individuals to move around in complete safety. In particular, the invention has an especially advantageous application for diving in lakes, in the sea, etc. for leisure, teaching or training purposes or for swimming.

In fact, at certain times of the year and/or depending on climatic conditions, the water may be very murky, making it difficult to envisage taking physical exercise, especially if diving. The only possibility is then to use a swimming pool. It is apparent that this solution is not satisfactory given the reduced dimensions of pools, especially their depth, which only make exercise for beginners possible.

The sought after object of the invention is therefore to enable any person to carry out aquatic exercise in deep water (lakes, sea, etc.), especially diving, regardless of the time of year, atmospheric conditions, even if the water is murky and even at night using submersed lighting powered by low voltage (12 volts).

In order to solve such a problem, a floating station for aquatic exercise comprising a floating frame subjected to the action of means of stabilising and anchoring relative to a body of water has been designed and developed, said frame being attached to a liner made of PVC or other material in order to constitute a submersed structure capable of allowing movement of at least one person, said liner advantageously being subjected to the action of a filtration system.

Another problem which the invention aims to solve is to make it possible to temporarily install the lock chamber at any location on the body of water in question. To achieve this, the means of stabilising and

anchoring consist of a boat to which the floating frame is attached or of a traditional anchorage.

It is apparent that the boat also makes it possible to transport the lock chamber to the desired location where the lock chamber can be temporarily installed.

The invention is explained below in more detail, reference being made to the accompanying drawings in which:

- Figure 1 is a perspective view of the lock chamber according to the invention;
- Figure 2 is a schematic cross-section showing how the lock chamber is installed in a body of water;
- Figure 3 is a plan view equivalent to Figure 2;
- Figure 4 is a plan view of one preferred embodiment of the station;
- Figure 5 is a longitudinal cross-section along line 5-5 in Figure 4;
- Figure 6 is a larger scale longitudinal cross-section of one of the sides of the frame of the station;
- Figure 7 is a schematic view showing an alternative embodiment in the form of a double floating station;
- Figure 8 is a schematic view showing the linking of several different floating-station liners by using a lock chamber;
- Figure 9 is a partial view showing one embodiment of the filtration system installed with the ability to move in order to adapt itself to the level of the water;
- Figure 10 shows an embodiment for emptying the liner;
- Figure 11 shows an embodiment for adjusting the level of the water in the liner and avoiding subjecting it to tension.

As indicated, the invention has an especially advantageous application for carrying out any exercises in deep water, especially in lakes, sea, etc. and has the objective of delimiting a secured area in order

to overcome problems associated with lack of visibility, especially when the water is particularly murky. One advantageous application, merely by way of example, is underwater diving carried out in particular for training purposes.

To achieve this, a floating station capable of being installed temporarily at any location in the body of water (P) in question has been designed. This station comprises a frame (1) made of a material and/or designed to float on the body of water (P). Frame (1) acts as a floating platform and has any geometrical shape whatsoever, for example quadrangular (Figure 1) or any other shapes, especially octagonal (Figure 4).

As shown in Figure 6 in particular, each side of frame (1) constitutes a floating watertight tank. For example, each tank may consist of extruded straight sections (5) which constitute the longitudinal edges of the tank in question. Each section has features for fitting a covering (6) in the form, for instance, of a duckboard. The interior of the tank thus produced is equipped with a floating material (7), in the form of foam for example.

Advantageously, at least one of the sides of frame (1) has features for fastening various accessories such as a ladder, parasol, barrier, etc.

The frame (1) is joined, by any known appropriate means, to a liner (2) made of PVC or other material so as to constitute a structure which is immersed in the body of water (P).

The dimensions of liner (2) are chosen so as to enable the movement of at least one person and, generally speaking, several persons.

Merely by way of example, the liner may be 1 to 7 metres high approximately and, if the liner is square, it may have a side length of approximately 4 to 8 metres.

Liner (2) made of PVC, for example, has a stiffener (3) at its bottom and/or on its walls.

As shown in Figures 5 and 7, liner (2) may have a platform (8) which acts as a bottom and is fitted so as to allow height adjustment in order to vary, consequently, the depth of the liner (Figure 5). For example, this platform (8) is subjected to the action of a pulley system (9) or other system (Figure 5).

It should be noted that liner (2), regardless of the shape in which it is made, may have double wall in order to allow circulation of a heat transfer fluid.

According to another aspect, the bottom of liner (2) is subjected to the action of a draining system (10) connected via a flexible pipe (11) to a floating means (12) capable of drawing in water at the surface of the water contained in liner (2). Obviously, draining system (10) as such is connected to any means of suction.

It also appeared important to be able to adjust the level of the water contained in liner (2), for example in the event of heavy rain and excessive filling, in order to be able to provide an overflow and avoid subjecting the liner to tension. The example shown in Figure 11, for example, shows one solution. The bottom of liner (2) is connected via hose (13) to a floating unit (14). This floating unit (14) has an inspection trap so that it communicates with drain hose (13) via a clack valve system (15).

Given the problem of making it possible for individuals to move around inside the liner, even when the water is murky, liner (2) is subjected to the action of a filtration system (4). The filtration system (4)

is of any appropriate type familiar to those skilled in the art and designed to make it possible to filter the water contained in the liner. One may, for example, use a system which employs a sand filter or some other filter which is electrically powered via a cable or by a battery or a solar cell battery.

For example, as shown in Figure 9, this filtration system (4) consists of a filter assembly (4a) submersed in the water in liner (2) and connected to a pump assembly. This pump assembly may be outside the liner or in the form of a submersible pump which has a low-voltage power supply. Advantageously, filter assembly (4a) is mounted on support (16) with the ability to move in order to adapt itself to the water level automatically.

Given these arrangements and as shown in Figure 2, the result is that the water inside the liner is not murky, in contrast to the mass of water into which the liner is immersed, and it also possible to temper the mass of water.

In order to ensure stability and anchoring of the entire station, the latter can be made fast to a boat which may advantageously be used in order to install the station at the desired location on the body of water in question. To achieve this, part of frame (1), for example, may have means of mooring to the boat. The possibility of using traditional anchoring is not excluded.

Without extending beyond the scope of the invention, the possibility of separately applying, by welding or other means, printed patterns on the walls and/or the bottom of the PVC liner in particular should be noted. The possibility of projecting a film or other scene onto the walls of the liner under water should also be noted.

Obviously, the liner in particular may be illuminated by any lighting system.

As shown in Figure 8, the liners (2) of several floating stations in accordance with the invention may communicate with each other by means of a lock chamber (17).

The advantages of the invention are evident from the above description.

CLAIMS

1- A floating station for aquatic exercise characterised in that it comprises at least one floating frame (1) which acts as a floating platform that is subjected to the action of means of stabilising and anchoring relative to a body of water, said frame(s) (1) being attached to at least one liner (2) in order to constitute a structure submerged in the body of water and capable of allowing movement of at least one person, the bottom and/or walls of the liner having a rigid stiffener (3) and a filtration system (4a) being submerged in the water in said liner (2) and connected to a pump assembly, the liner (2) has a platform (8) acting as a bottom fitted so as to allow height adjustment in order to vary, consequently, the depth of said liner, the bottom of liner (2) is subjected to the action of a draining system connected via a flexible pipe to a floating means (12) capable of drawing in water contained in said liner at the surface of the water.

2- A floating station as claimed in claim 1, characterised in that liner (2) has a double wall in order to allow circulation of a heat transfer fluid.

3- A floating station as claimed in any of claims 1 to 2, characterised in that the bottom of the liner is subjected to the action of a level controller assembly (14)-(15) capable of acting as an overflow for said liner and avoiding subjecting it to tension.

4- A floating station as claimed in claim 1, characterised in filtration systems (4) consists of a filter assembly (4a) submersed in the water in liner (2) and connected to a pump assembly, said filter assembly being mounted on support (16) with the ability to move in order to adjust itself to the level of the water automatically.

5- A floating station as claimed in claim 1, characterised in that each side of the floating frame (1) consists of a tank formed by extruded sections (5) which constitute the longitudinal edges of the tank and have features for fitting a covering (6) which constitutes the faces of the tank and between which a floating material (7) is placed.

6- A floating station as claimed in claim 5, characterised in that at least one of the sides of the frame has features for fastening accessories.