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Bauermeister

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[54] **UPPER ARM SWIMMING RING**

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Sept. 2, 1970 Germany.....P 20 43 531.8

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[51] **Int. Cl.**.....**B63c 9/08**
[58] **Field of Search**.....9/340, 344, 345, 9/311

[56] **References Cited**

UNITED STATES PATENTS

149,513	4/1874	Ormsbee	9/344
1,611,427	12/1926	Evans	9/344
1,385,581	7/1921	Pallady	9/345
2,210,809	8/1940	Gray	9/345

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[57] **ABSTRACT**

An inflatable upper arm swimming ring is provided with an additional buoyant body so that if air accidentally escapes from the ring there will still be sufficient buoyancy to hold the swimmer's head above the water. This additional buoyant body may be a separate inflatable member or a float.

8 Claims, 10 Drawing Figures

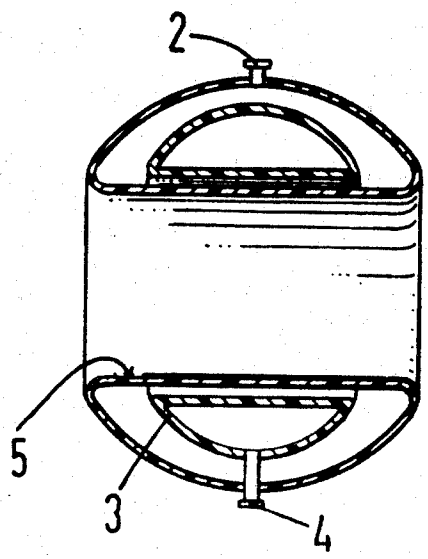


Fig. 1

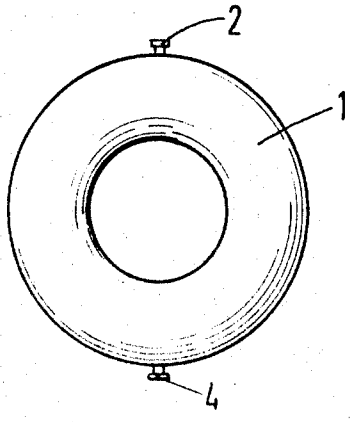


Fig. 2

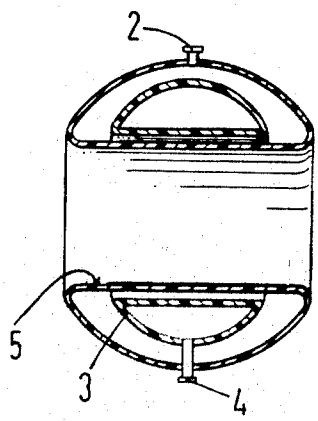


Fig. 3

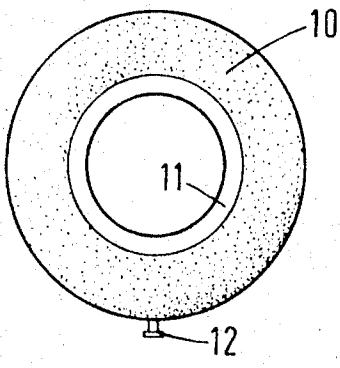


Fig. 4

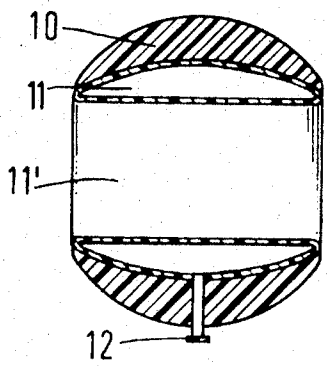


Fig. 5

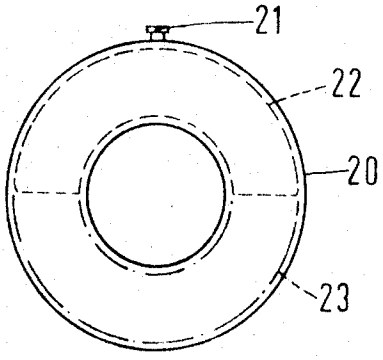


Fig. 6

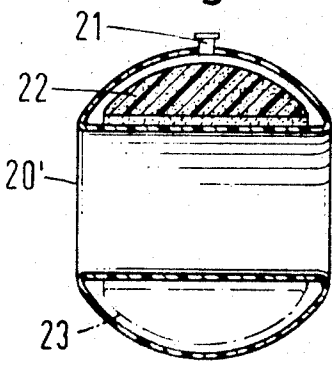


Fig. 7

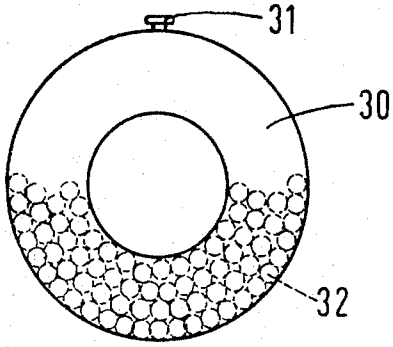


Fig. 8

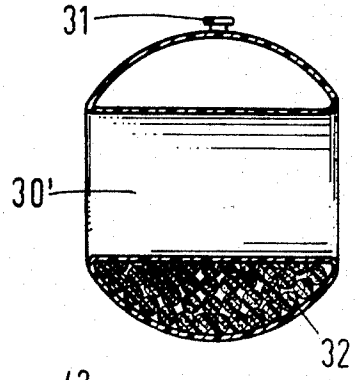


Fig. 9

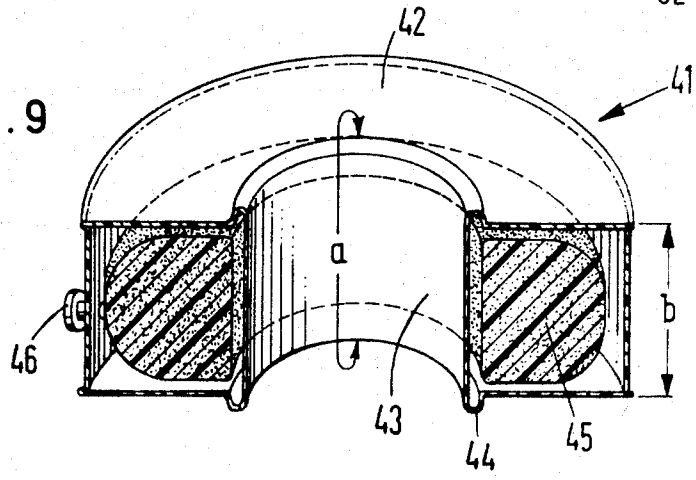
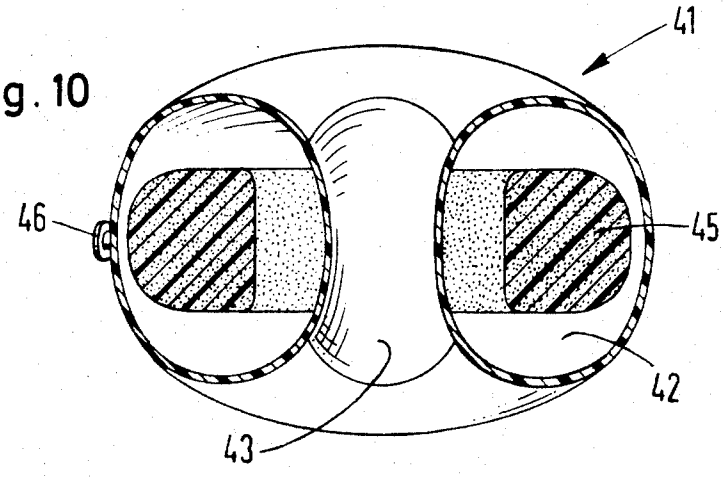


Fig. 10



UPPER ARM SWIMMING RING

Swimming rings of small dimensions intended for fixation to the upper arms have been known; e.g., as rigid rings made of light material or as inflatable bodies. Usually such inflatable bodies consist of an oblong inflatable thin hose of rubber or plastic material which is held together at its ends, carries an outwardly extending inflation valve and is deformed by its inflation to a wing-like triangular body surrounding the upper arm. However, the angular shape of these arm swimming bodies can cause face injuries on unsuitable arrangement on the arm and also result in awkward head and arm movements of the swimming person. Beside this, these and other inflatable arm swimming helps have the disadvantage that they can lose their buoyancy by escape of the air if they leak or develop leaks. It happens easily that on inflation small leakages of the inflatable bodies will remain unperceived if the air escapes only slowly. In such case there is the risk that the user of such swimming helps will not perceive the escape of the air until it is too late for him to reach the safe shore.

It is among the objects of this invention to construct an inflatable upper arm swimming ring which on inflation has an especially high buoyancy or lift force, which is movable in the water with reduced resistance during the necessary swimming movements of the arms, and which will always have a minimum buoyancy for the user even in the case of damage to the inflated body and unperceived escape of the air.

According to this invention the inflatable upper arm swimming ring, which is provided with an inflation valve, is equipped with an additional buoyancy body which on escape of the inflation air retains a minimum partial buoyancy of sufficient extent to keep the user's head above the water. This additional buoyancy body may consist of a second inflation body that is arranged within an inflatable exterior case by which it is secured against damage. However, the second buoyancy body may also be formed by an exterior or interior body of light material such as cork or foamed plastic material.

In its preferred form the upper arm swimming ring according to the invention has in use a nearly spherical configuration. By this configuration its water resistance during swimming movements is especially small, its buoyancy especially high and its visibility on observation of the user from the shore especially good.

Preferably, the inflatable exterior case of the upper arm swimming ring according to the invention has a spatial-circular shape which, on inflation, is expanded to a spherical configuration. When not inflated, the case has a nearly rectangular cross section and a nearly cylindrical arm passage, the axial length of which is greater than the height of the cylindrical circumferential surface, which features will result in the nearly spherical configuration on inflation. The cylindrical passage for the user's arm consists conveniently of elastically flexible material. In this case the arm passage will be stretched in length and reduced in diameter on inflation of the case, thus resulting in a homogeneous firm seat of the inflated and nearly spherical ring on the user's arm. Simultaneously, the ends of the cylindrical arm passage of the case are expanded outwardly in funnel-like fashion, which results in good freedom of action for the forearm on effecting the swimming movements.

The drawing shows examples for the construction of the upper arm swimming ring according to the invention, showing in

FIG. **1** a side view of a swimming ring;

FIG. **2** a central vertical section through the ring;

FIGS. **3** and **4** similar views of another form of the invention;

FIGS. **5** and **6** corresponding views of a third embodiment;

FIGS. **7** and **8** similar views of a further modification;

FIG. **9** a central cross-section through a preferred form of the swimming ring when not in use; and

FIG. **10** is a cross-section of the ring shown in FIG. **9**, but showing it while inflated.

The upper arm swimming ring according to FIGS. **1** and **2** consists of an annular outer case **1** which is inflatable to a nearly spherical configuration and is provided with an inflation valve **2**. The exterior case contains an inflatable inner ring **3** with separate inflation valve **4** that extends through the outer case and is shown lying diametrically opposite to inflation valve **2**. The exterior case or ring **1** is provided with a cylindrical arm passage **5**, which is surrounded by the interior ring **3**. As the latter is spaced some distance inwardly from the outer case, it is well protected against damage by exterior influences. Even in the case of possible damaging of the case of the outer ring, the interior ring will remain filled with its inflation air and will insure a remaining minimum buoyancy of the upper arm swimming ring. If both inflation valves are opened after use of the swimming ring, the air will escape from both chambers and the ring then can be stored in flat folded manner.

The upper arm swimming ring according to FIGS. **3** and **4** has an exterior ring body or float **10** made of light material, consisting, e.g., of foamed polystyrene. Rigidly glued to this outer ring body **10** is an inflatable inner ring **11** the inflation valve **12** of which extends outwardly through the ring body. The inner ring **11** contains a cylindrical arm passage **11'**. This embodiment has the particular advantage that the inflatable inner ring **11** is protected against injuries by the exterior ring body **10** made of light material. On inflation of the inner ring **11**, it will expand the outer ring body **10** spherically and will clamp it simultaneously to the user's arm.

The upper arm swimming ring according to FIGS. **5** and **6** consists of an inflatable outer ring **20** with arm passage **20'** and with an inflation valve **21**. For insuring a minimum buoyancy in the case of unperceived escape of the inflation air, the outer ring contains an insert body **22** made of light material which has the shape of a half ring but may also be completed by a complementary part **23** to a full annular insert.

The upper arm swimming ring according to FIGS. **7** and **8** also consists of an inflatable outer ring **30** that is provided with a cylindrical arm passage **30'** and with an inflation valve **31**. The outer ring contains a plurality of small buoyant balls **32** of light material filling the outer ring to nearly half of its volume. This has the advantage that on non-use and deflation, the swimming ring can be pressed together to any desired shape.

Even in the case of simple spherical upper arm swimming rings that are not provided with an additional life body, swimming is substantially facilitated by the spherical configuration.

The upper arm swimming ring **41** according to FIGS. **9** and **10** consists substantially of a thin inflatable outer case **42** of rubber or plastic material which, in the non-inflated state according to FIG. **9**, has a spatial annular configuration and is provided with a cylindrical arm passage **43**. This arm passage is formed by a thin cylindrical hose, the length *a* of which in the non-inflated state of the swimming ring is substantially greater than the circumferential height *b* of the outer case **42**. Because of this greater length the tube of the arm passage **43** can be folded in the non-inflated state of the outer case on one or both ends of the arm passage to circular folds **44**. The outer case **42** contains an annular safety body **45** or float made of light material, this body being inserted loosely in such manner that it is axially displaceable along the arm passage **43**. The safety body **45** is dimensioned in such way that it insures to the swimming ring a calculated minimum lift which will still be present if all of the air should escape from the outer case and the latter be filled unintentionally with water. The outer case **42** is provided at its circumference with an inflation valve **46**.

On inflation of the outer case **42** the hose forming the arm passage **43** will be stretched to its full length in such a way that the outer case will come to a nearly spherical configuration, as shown in FIG. **10**. Simultaneously, the arm passage **43** will be radially extended at its ends in funnel-like manner while its central portion will be contracted, thus ensuring a rigid seat of the swimming ring on the arm of the user.

Practically, the upper arm swimming rings disclosed herein will of course be used in pairs in such way that the user carries one ring on each of his upper arms.

By the nearly spherical shape which the ring is to have also in all other constructions according to FIGS. **1** to **8** it has an especially small water resistance. Therefore, it neither impairs the swimming movements nor the propulsion of the swimmer, which is produced by the movements on breast-stroke or backstroke and other types of swimming styles. The reliable firm seating of the ring on the upper arm, the substantial lift force of the nearly spherical swimming ring and its capacity reliably to prevent sinking and submersion, allow the user to stop swimming movements at any time and yet stay afloat without any movements as long as desired.

The arm passage of the upper arm swimming ring according to the invention may also be arranged eccentrically with respect to the circumference of the ring, such arrangement allowing adjustment of the swimming ring in its rotational position on the user's arm to provide the most convenient arrangement for different techniques of swimming.

The inflatable outer case of the upper arm swimming ring can be manufactured entirely or partly of transparent material, allowing sight control of the interior additional lift body.

I claim:

1. An inflatable swimming ring comprising a hollow inflatable annular body having a passage therethrough for the upper arm of a wearer, an externally accessible inflation valve communicating with the inside of said hollow body for inflating it, the wall of said arm passage being deformed inwardly by inflation pressure in said body to thereby clamp the ring against an upper arm in the passage while the rest of the hollow body is blown up by said pressure like a balloon, and buoyant means carried by said hollow body for supporting the wearer in water in case inflation pressure escapes from said body.

2. An inflatable swimming ring according to claim **1**, in which said buoyant means is a second hollow inflatable annular body enclosed within said first-mentioned body and provided with an inflation valve substantially diametrically opposite said first-mentioned valve and sealed in said first body, there being clearance space between the two hollow bodies when both are inflated.

3. An inflatable swimming ring according to claim **1**, in which said buoyant means is a ring of buoyant material encircling the circumference of said inflatable body and secured to the outer surface thereof.

4. An inflatable swimming ring according to claim **1**, in which said buoyant means is a rigid body of buoyant material loosely disposed inside said hollow body and spaced from the inner surface thereof so that it does not interfere with said deformation of said passage wall and said ballooning of said hollow body.

5. An inflatable swimming ring according to claim **1**, in which said buoyant means is a plurality of small buoyant ball-like members disposed inside said hollow body and filling part of it when it is inflated.

6. An inflatable swimming ring adapted to be clamped around the upper arm of a wearer when the ring is inflated, the ring comprising an annular rigid body of buoyant material and of substantially cylindrical configuration having an axial length that is less than its diameter, said rigid body also having substantially flat parallel side faces and an axial passage for the wearer's arm, said passage being large enough in diameter to leave clearance between said body and the arm within it, and a hollow inflatable annular envelope enclosing said rigid body and having substantially the same cylindrical shape as said body when uninflated, said envelope having an axial arm passage extending through said axial passage of the rigid body and being substantially greater in length than said body passage so that said envelope on being inflated is deformed to a substantially spherical ball-like configuration with the wall of its arm passage clamped to the wearer's arm.

7. An inflatable swimming ring according to claim **6**, characterized in that the side faces of the uninflated envelope are transparent to permit said rigid body to be seen.

8. An inflatable swimming ring according to claim **6**, characterized in that the axial passages through said buoyant rigid body and said inflatable envelope are arranged eccentrically relative to the circumferential surfaces of said body and envelope.

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