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**(54) Procedure and device for lifting a sports craft**

the rear side areas of the hull (1), attached to it by warps (11), so that the extent to which the floats (4) are inflated determines the height by which the stem (2) of the boat is raised.

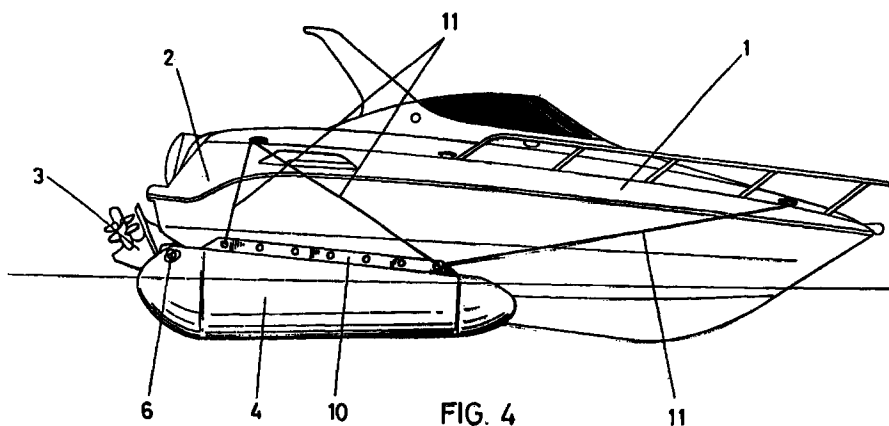


FIG. 4

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## Description

### AIM OF THE INVENTION

[0001] This invention is for a new mooring procedure specially desired for sports craft, and in particular for boats which must be moored over long periods of time for most of the year.

[0002] The invention also includes the device used to put this procedure into practice, and it is thanks to this that the craft's stern is raised high enough with respect to the surface of the water to keep the motors, tailpieces, propeller shafts and other metal parts clear of the water, thus preventing corrosion from salt water and the subsequent repercussions on the service life of such equipment.

### BACKGROUND TO THE INVENTION

[0003] Obviously, most boats are used exclusively in the summer for leisure purposes over one or two months, and remain unused for the rest of the year.

[0004] When boats are forced to remain inoperational at sea, this creates considerable problems of metal corrosion in equipment such as tailpieces, propeller shafts, motors and others, which tend to be located in the stern, to the extent that it may be said that the service life of a boat and its motors is directly proportional to the amount of time they remain in the water.

[0005] From the above it may be deduced that in the case of normal use of this type of craft, i.e. use of the craft over a period of not more than two months per year, its service life could be increased six times over if it were kept out of the water during long periods of disuse.

[0006] This problem is easily solved in the case of small craft, since they may be removed from the water and put into private storage for this long period of disuse, and the worst-case scenario is a relatively low charge for storage.

[0007] In the case of larger craft, the problem becomes more difficult since although some ports have "parking lots" for boats, many do not, and the former tend to charge extremely high rents, and thus the great majority of owners of such boats are forced to leave their boats moored either at the clock in the port or moored to buoys out in the bay, with all the problems that this involves from the point of view of corrosion, mentioned above.

### DESCRIPTION OF THE INVENTION

[0008] The mooring procedure proposed by this invention solves these problems, and allows the boat to remain securely moored in the water for as long a period as is required without exposure to the above-mentioned damages caused by corrosion. This procedure consists of raising the stem by placing an inflatable

component below it attached to the boat itself so that all metal components which could be damaged by corrosion are kept clear of the water. These may also be greased down, and covered with plastic sheeting or tarpaulins to provide then, with suitable protection for the entire period during which the boat is not in use.

[0009] Two inflatable floats are used to put this procedure into practice. They are connected to each other in accordance with the width of the boat, preferably with a pneumatic connection so that their respective pressures are automatically kept the same and to prevent asymmetric buoyancy effects.

[0010] In accordance with another feature of the invention, it is preferable that the floats have a rigid upper base to make contact with the hull, so that the connection between the floats is between both rigid bases. The means of connection may be two warps zig-zagging between perforated brackets on the rigid bases, which shall also include further external brackets to attach the floats, also by means of warps, to suitable mooring points on the sides of the craft. All these warps shall have suitable tightening devices to secure the device to the hull of the craft.

[0011] In accordance with another feature of the invention, the rigid bases shall be grooved so that when the float is inflated it creates "stud" deformations which slide into the grooves and establish direct contact with the hull for better adhesion and to prevent damage to the float.

[0012] The floats shall also be slightly conical, and shall converge forwards so that maximum buoyancy is to the rear for optimum buoyancy torque without destabilising the craft, but tending to raise the stem and therefore keeping the above-mentioned metal components clear of the water.

[0013] During periods when the boat is in use, this device may be used as an auxiliary catamaran by connecting the two floats with rigid beams, The catamaran may also be independently operated either manually or using a small outboard motor.

### DESCRIPTION OF THE DRAWINGS

[0014] In addition to this description and for a better understanding of the features of the invention, in accordance with an example of how the device is preferably to be used, we have included, by way of illustration and not for any purposes of limitation, a set of drawings showing the following:

Figure 1.- This shows the top view of a device to put into practice the mooring procedure for sports craft, in accordance with the purpose of the invention.

Figure 2.- This shows the side elevation of the same device.

Figure 3.- This shows a cross section of one of the

floats.

Figure 4.- This is also a side elevation, showing the device attached to a boat.

#### PREFERABLE PROCEDURE FOR THE INVENTION

[0015] Figure 4, in fact, shows how, in accordance with procedure for the invention, the boat (1) is forced to tilt lengthwise, raising its stem (2) so that the motor (3) and other metal components at the far end to the rear are lifted clear of the water.

[0016] A device is used to this end which consists of a pair of floats (4-4'), sized in accordance with the dimensions of the boat (1) for suitable upward buoyancy. These two floats (4-4') are pneumatically linked by a connection pipe (5), which ensures completely uniform pressure for each of them and, if required, also allows the floats to be inflated using only the inflating valve (6) on one of them. The floats (4-4') are also mechanically interconnected by, for example, two warps (7) with end tighteners (8) zigzagging between fastenings (9-9') connected to the respective floats (4-4') by, for example, the perforated brackets clearly visible in figures 1, 2 and 3.

[0017] Obviously the perforated brackets (9-9') shall be located over the facing edges of the floats (4-4'), and they shall be quite coplanar or horizontal to secure the warps (7). Each float (4-4') shall have another external perforated bracket (10-10') similar to the above, although bent upwards. Its orifices shall be used to secure the warps (11) which attach the entire device to the craft (1), as shown most clearly in figure 4.

[0018] In accordance with the example of how this invention is preferably to be carried out, brackets (9-10) and (9'-10') shall form part of two rigid components (12-12') which comprise the float's upper base and more specifically the area of contact between both floats and the hull of the craft (1). This prevents unwanted friction which could damage the floats, and also isolated stress on the warp fastenings which could also damage the floats if it were concentrated on their walls.

[0019] The rigid components (12-12') have a number of crosswise grooves (13) so that, while the floats (4-4') are being inflated, "studs" are created for a tongue-and-groove attachment, thus increasing the unit's stability.

[0020] In accordance with this layout, the device is attached to the base of the craft at the end of the stern, with the floats (4-4') deflated to make the operation easier to carry out. A suitable space must first be left between the floats by adjusting the tighteners (8) controlling the working length of the interconnecting warps (7). When the device has been attached to the boat (1) by the working lines (11), the floats (4-4') are inflated, the boat (1) raises its stern (2) and lifts the tailpieces, the propeller shaft, the motor and other metal parts clear of the water.

[0021] Moreover, since the boat rests abnormally inclined towards the bow and not towards the stern,

water which always ends up in the engine bilge due to rain or splashes of sea water and which can never be bailed out completely, moves to areas where it can cause no corrosive damage instead of lying under the covers of the engine casing.

[0022] The floats (4-4') carry out two functions in that when the boat is in use and they are not required, they may be locked together by means of rigid spacers not shown in the figures and lock on to brackets (9) and (10) to form a small kind of auxiliary catamaran. For this the floats (4-4') shall have a section decreasing towards the front, as may be observed most clearly in figures 1 and 2. This craft may be rowed or driven by a small outboard motor.

#### Claims

1. Mooring procedure for sports craft, the objective of which is to prevent the corrosive effects of sea water on tailpieces, propeller shafts, motors and other metal equipment around the stern during long periods of disuse. This procedure consists of raising the area around the stern (2) of the boat (1) by inserting a float (4) underneath, sized for sufficient upward buoyancy so that the items to be protected (3) are kept clear of the water and may be greased down and covered over until the boat is used again.
2. Device for putting into practice the procedure set out in claim 1, featuring twin floats (4-4') with interconnection (7) and adjustable spacing, attached (11) to the main body of the craft (1), so that the floats may be positioned and secured in the most suitable fashion in accordance with the configuration of the outermost section of the stern (2).
3. In accordance with claim 2, the device features two floats (4-4') pneumatically interconnected by a connection pipe (5), to equalise the pressure in both floats and thus the buoyancies on the sides of the boat (1).
4. In accordance with claim 2, the mechanical connection between the floats (4-4') consists of two warps (7) with end bow and stern tighteners (8), zigzagging between the floats (4-4') through perforated brackets (9-9') attached to them. The exterior section of the floats shall have another set of perforated brackets (10-10') to fasten the unit's working lines (11) to the craft (1).
5. In accordance with claims 2 and 4, the device features perforated brackets (9-9'), (10-10') attached to a rigid component (12-12') which, fastened to the floats (4-4'), comprises their contact with the hull of the boat (1).
6. In accordance with claims 2 and 5, the device fea-

tures floats with a section decreasing progressively towards the front and ending in sharp cones for improved hydrodynamics in the use of the device when the craft (1) is operational as a small auxiliary catamaran, with the floats (4-4') interconnected by rigid beams attached to perforated brackets (9-9'), (10-10').

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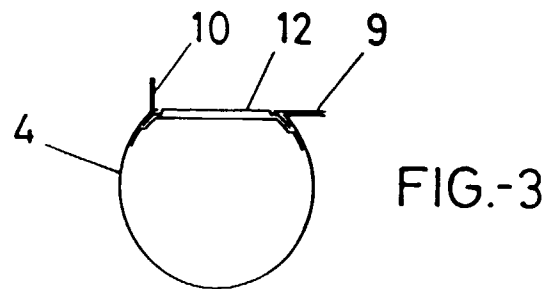
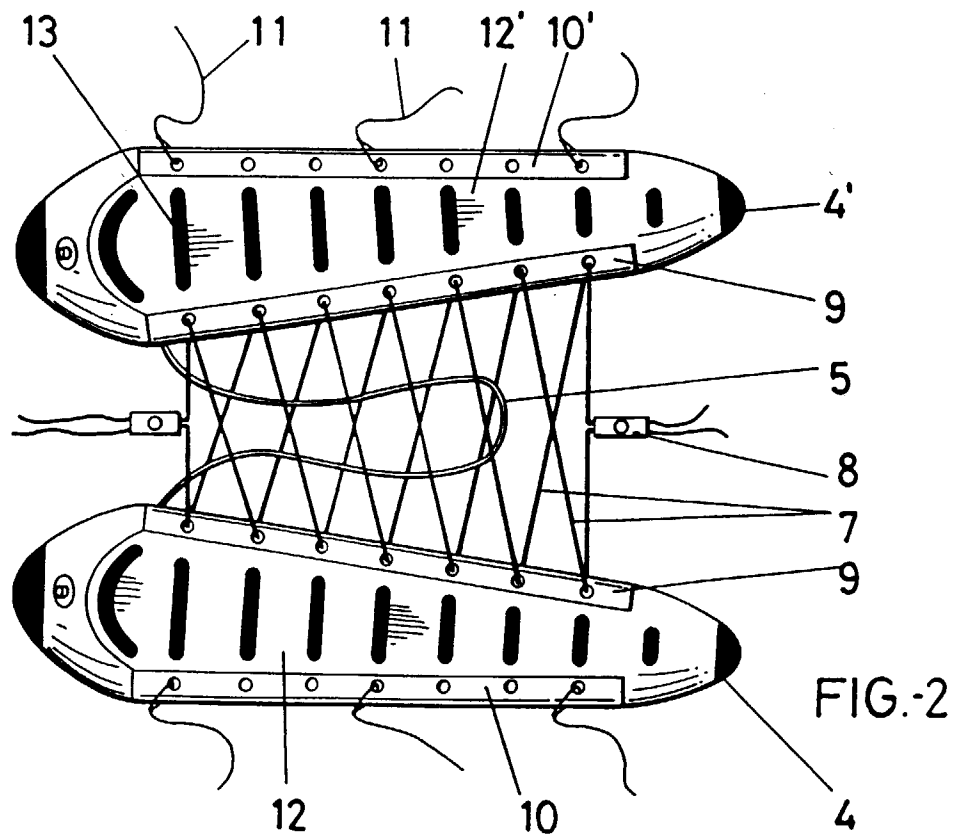
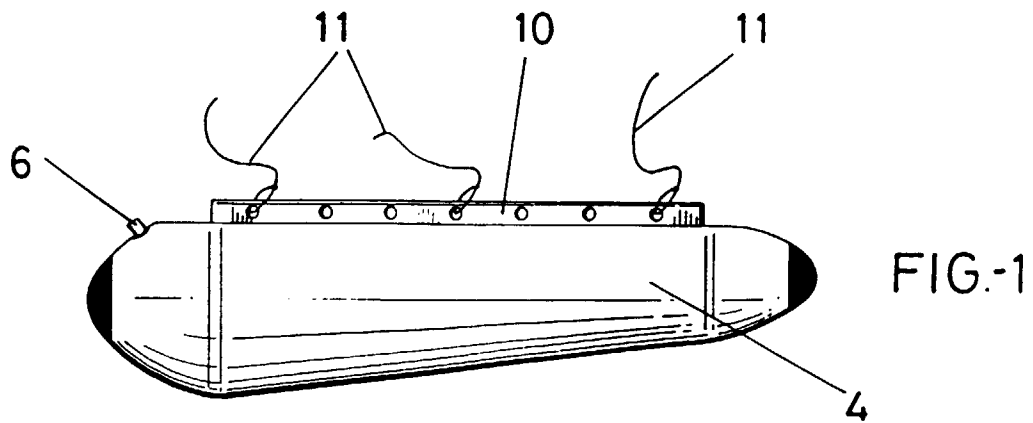
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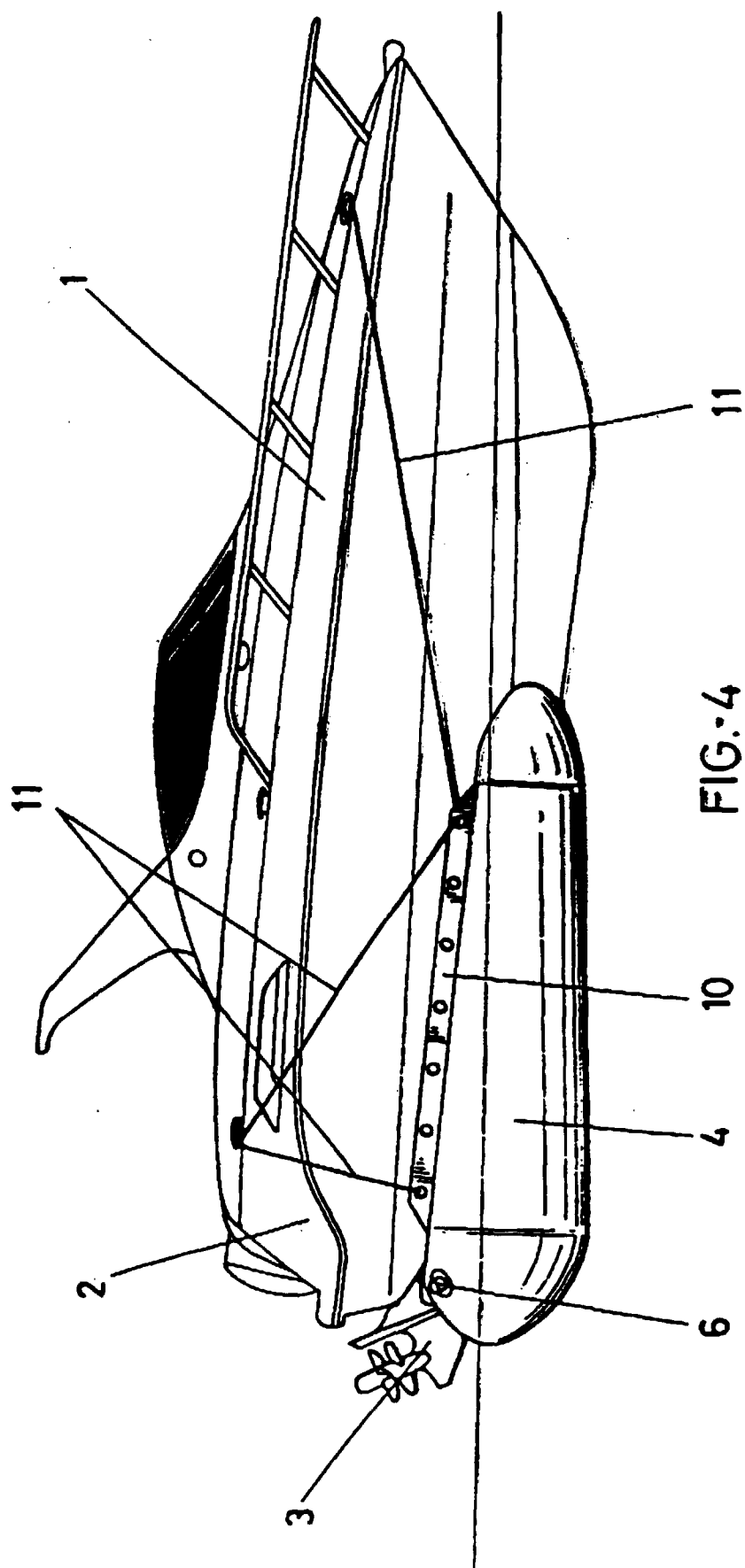


FIG. 4



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# EUROPEAN SEARCH REPORT

Application Number  
EP 97 50 0211

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	WO 92 02407 A (HARPER CHRISTOPHER ;ROHL BENITA GAY (AU); WONG PAUL C (AU); PEARCE) 20 February 1992 * page 3, line 5 - line 23; figure 1 * ---	1,2	B63C1/04
X	US 4 072 119 A (WILLIAMS BARNEY V) 7 February 1978 * page 1, line 14 - line 25; figure 1 * * column 4, line 44 - line 60 * ---	1,3	
A	FR 2 280 544 A (SUPERFLEXIT) 27 February 1976 * page 3, line 17 - line 18 * * claim 1; figure 1 * ---	1	
A	US 5 357 888 A (INSINNA DAVID E) 25 October 1994 * abstract; figure 1 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B63C B63B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		13 May 1998	Zaegel, B
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