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(71) Applicant and

(72) Inventor: **WAKKER, Klaas Jacob** [NL/NL]; In 't Vizieer
2, NL-8309 AS Tollebeek (NL).

(74) Agent: **KLAVERS, Kees (C.) W.A.M.**; Markerkant
1201.20, NL-1314 AJ Almere (NL).

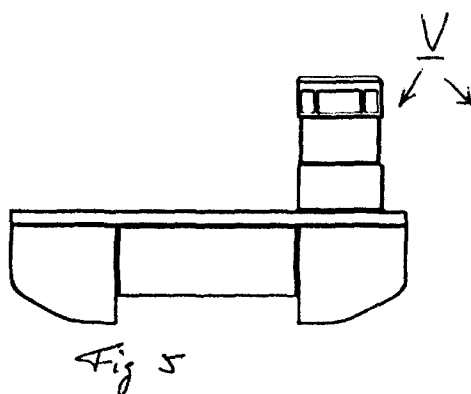
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(54) Title: A VESSEL COMPRISING AN INFLATABLE PART WHICH IS INFLATED IN DEPENDENCE ON THE USE OF THE VESSEL



(57) Abstract: There is disclosed an adaptation of existing floating (hoist) platforms. Said adaptation comprises the changing of the hull shape, causing the buoyancy to increase or decrease and the drag to increase or decrease during movement. Said deformation is a dynamic deformation, and the platform will retain a horizontal position in case of an uneven load. The platform is cheaper to produce and can be used in a more rapid and flexible manner.

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A VESSEL COMPRISING AN INFLATABLE PART WHICH IS INFLATED IN
DEPENDENCE ON THE USE OF THE VESSEL

5 It takes a great deal of energy to move vessels such
as hoist platforms. In addition, it is hardly possible to
realise a satisfactory speed with such vessels. Both
factors adversely affect the cost price of projects in
which such vessels are used.

10

The object of the present invention is to obviate the
above drawbacks of vessels provided with floats and to
provide a multifunctional and cost price-friendly method
and a corresponding vessel.

15

The invention relates to a method in which at least
two floats separated by one or more intermediate spaces
form a vessel which is provided with inflatable elements
which, in the inflated condition thereof, fill said at
20 least one intermediate space at least partially.

20

The corresponding vessel comprises at least two
floats separated by one or more intermediate spaces, and
inflatable elements which, in the inflated condition
25 thereof, fill said at least one intermediate space at least
partially.

25

In the non-inflated condition of the inflatable
elements, such a vessel has a typical, catamaran-like hull
30 shape defined by the floats and the intermediate space
present therebetween. According to the present method, the
hull shape is deformed as a result of the inflatable
elements being partially or completely inflated or
deflated. The drag of a vessel having a catamaran-like hull
35 shape in water is comparatively low, so that a rapid
movement of the vessel can be realised in an advantageous

35

manner.

Because it is precisely the extent to which water is being displaced that determines the lifting potential of a vessel, for example in the form of a hoist platform, a catamaran is unsuitable for use as a hoist platform.

However, since the invention makes it possible to convert a catamaran-like hull shape into that of a regular - non-catamaran - vessel, the amount of water displaced by the vessel strongly increases, resulting in an increased lifting capacity or deadweight capacity, thus realising desired advantages which render the vessel suitable for use as a support platform or a hoist platform. Both hull shapes, viz. a voluminous pontoon on the one hand and the more slender catamaran on the other hand are combined in a vessel, such as a hoist platform, which is provided with the invention.

In one possible embodiment, the vessel according to the invention may comprise a number of inflatable cushions arranged between the floats of a catamaran, which cushions are retained between the floats after being inflated. Said retained position is in particular realised in such a manner that the cushions completely fill the intermediate space between the floats, thus supplying the additional buoyancy that is required for supporting heavier loads.

In a simple embodiment, the movable parts enclose the cushions in such a manner that, once the cushions have been inflated, said movable parts are immovably retained in the intermediate space between the floats.

As a result, they cannot deform and are capable of providing the required stability. Advanced embodiments can

be dynamically given a shape adapted to the load to be hoisted, for example, so that the buoyancy on the non-hoisting side of the hoist platform decreases rather than increases, thus making it possible to effect a horizontal position of the platform even during the hoisting operation. As a result, the invention is in particular also advantageously suitable for supporting spans exhibiting an irregular weight distribution, thus making it possible to dynamically remove any objectionable inclinations in longitudinal and transverse direction in a road surface.

In the case of operations in which support is quickly needed, also the shorter period, determined by the sailing time, within which the support vessel is available will constitute an important advantage. This applies for example in case of impending high cost resulting from action being taken too late or, for example, in case of the vessel according to the invention being needed to avert imminent danger. In the case of the above-mentioned activities, it will be speed and adaptability that will constitute the most obvious differences and advantages of the vessel according to the invention as described herein in relation to the conventional floating platforms.

Further embodiments and associated uses in addition to those described above are possible within the scope of the present invention. The embodiments and uses described herein are to be regarded as non-limitative, therefore.

The following are important aspects and advantages of the method and the vessel according to the invention:

a) The invention also relates to a possible adaptation of existing floating (hoist) platforms, by which the hull shape is changed, causing the buoyancy to increase

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or decrease and the drag to increase or decrease during movement;

5 b) The change of the hull shape or the deformation is a dynamic change, making it possible to maintain a horizontal position of the platform, even if it is loaded unevenly;

10 c) If desired, the platform vessel can be transported by road in separate parts to be coupled together, whilst it can furthermore be deployed over water as well as be adapted to the desired use thereof in a cheaper, quicker and more flexible manner;

15 d) The platform can be geared as regards its shape and dimensions to the requirements of the most widely varying range of applications;

20 e) The platform vessel comprises possibilities to measure and adjust the air pressure in the various cushions by means of an air pressure adjusting system. Furthermore it is possible to adjust the required buoyancy distribution or the maximum load by means of said system. In the former case in order to compensate for an uneven weight
25 distribution of the load for the purpose of maintaining the vessel in a horizontal position and in the latter case in order to prevent the vessel being overloaded.

30 f) The platform comprises possibilities to deliver information and programmable instructions to the user, via a display screen and a PC built into the platform, regarding the pressure distribution in the various cushions, so as to adapt the pressure in the individual cushions to the local requirements and maintain said
35 pressure.

For a more detailed explanation, reference is finally

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made to the figures below, in which like parts are indicated by the same numerals. A wheel house 2 and an air inlet provided with a compressor 1 are placed on a vessel or platform vessel V, which is shown in every one of the
5 appended figures 1-8. The figures indicated by increasing, odd numbers show respective front views of the hull shape, and in particular the change in the hull shape as the pressure in the initially empty air cushions 3 is gradually increased. Numeral 4 indicates the floats, which are
10 coupled via a support platform D, whilst the intermediate space is indicated at T. The likewise increasing even numbers show respective longitudinal sectional views of the vessel V, and in particular the change in the position of the inflatable air cushion elements 3 as the pressure
15 therein is gradually increased. In the illustrated embodiment, the inflatable cushions 3 are supported on the underside by an adjustable bottom B. The uppermost position of the adjustable bottom is indicated at 5, and the lowermost position of the bottom B is indicated at 6. In
20 the position indicated at 7, the air cushions are completely filled.

CLAIMS

1. A method in which at least two floats separated by one or more intermediate spaces form a vessel which is provided with inflatable elements which, in the inflated condition thereof, fill said at least one intermediate space at least partially.

2. A method according to claim 1, characterised in that the inflatable elements are empty when the vessel is being moved, whilst the inflatable elements are at least partially inflated when the vessel is stationary.

3. A method according to claim 1 or 2, characterised in that the air pressure in the inflatable elements is regulated in dependence on, for example, the required buoyancy of the vessel or the distribution of the required buoyancy.

4. A method according to any one of claims 1-3, characterised in that the inflatable elements are provided with individual cushions, in which an individual pressure and relative pressure distribution is adjusted.

5. A vessel comprising at least two floats separated by one or more intermediate spaces, as well as inflatable elements which, in the inflated condition thereof, fill said at least one intermediate space at least partially.

6. A vessel according to claim 5, characterised in that the inflatable elements are provided under a support platform by which the floats are coupled together.

7. A vessel according to any one of claims 5 or 6, characterised in that the vessel comprises an air pressure

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adjusting system connected to the inflatable elements.

8. A vessel according to any one of claims 5-7,
characterised in that the inflatable elements are provided
5 with individual cushions, which are each connected to a/the
air pressure adjusting system of the vessel.

9. Use of the vessel according to any one of claims
5-8 as a pontoon or a platform, for example a floating
10 support and/or hoist platform, wherein the inflatable
elements of the vessel are filled with air when the vessel
is stationary, with the respective air pressures depending
on the weight and/or the weight distribution of a load
supported by the vessel.

15

10. Use according to claim 9, characterised in that
the inflatable elements are empty when the vessel is being
moved so as to influence the hull shape of the vessel and
minimise the drag of the vessel.

