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(54) Device for transferring objects at sea

(57) The invention relates to a device for transferring objects from a first location at sea to a second location, in particular the crew of an offshore platform. The device comprises at least one lifting means and a transport means, with the proviso that the transport means comprises floating means and can be self-propelled, and the transport means comprises coupling means for coupling to the lifting means. Objects can be transferred in safe and efficient manner using the device.

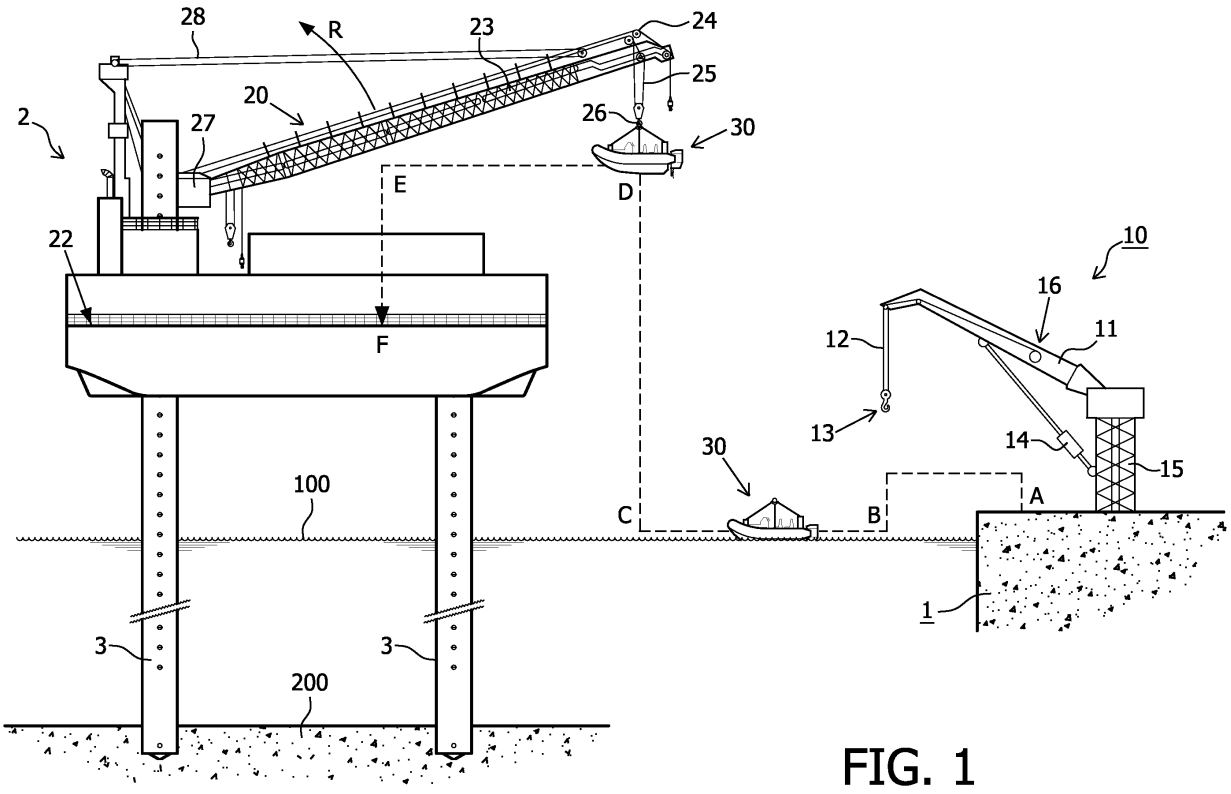

FIG. 1

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Description

[0001] The invention relates to a device for transferring objects from a first location at sea to a second location. The invention relates particularly to a device for safely transferring the crew of an offshore platform to the shore or a ship, and vice versa.

[0002] The safe transfer of objects such as materials and goods, and particularly people, from an offshore platform to a second location, such as a supply ship or the shore, is generally carried out with devices especially developed for this purpose. Such devices may be necessary when the wind is so strong and erratic that transport by helicopter for instance becomes dangerous.

[0003] A known device comprises a basket with rigid bottom which is carried from the first location to the second location by means of suspension from a cable system. When the crew of an oil platform is transferred from for instance a ship to the oil platform, the basket is placed on the rear deck of the ship and, once the crew has embarked, suspended from the cable system and transferred in one movement to the oil platform. This is accompanied by a strong swinging movement, wherein there is a great danger of the basket being swung against parts of the platform, the ship or the device itself. Such a type of device has undergone significant improvements in recent years, practically all relating to the safety of the persons for transferring. A device of the above stated type is for instance described in US 5,713,710, wherein the basket is provided with a large number of safety measures, such as belts for securing the persons for transferring, a cage construction and as many as three types of bumper for absorbing shocks, guide wires which guide the basket from the first location to the second, and so on. The known device is complicated and, despite the various safety measures, still does not provide the desired safety. There is moreover a need to further improve the speed of transfer.

[0004] The invention has for its object to provide a device for transferring objects from a first location at sea to a second location, which at least partially obviates the above stated drawbacks.

[0005] According to the invention a device is provided for this purpose which comprises at least one lifting means and a transport means, with the proviso that the transport means comprises floating means and can be self-propelled, and the transport means also comprises coupling means for coupling to the lifting means. Using the invented device objects are transferred from a first location at sea to a second location by providing the transport means with these objects, then coupling the transport means to a first lifting means of the first location and hereby carrying it to the sea surface, then uncoupling the transport means from the first lifting means and carrying it under its own power into the vicinity of the second location, wherein the transport means is subsequently coupled to a second lifting means of the second location and carried from the sea surface to the second location by the second lifting means. A safer transfer is achieved because, among other reasons, the transport means comprises floating means and can be self-propelled over the sea surface. The transport means can move itself to the desired, safest position. Because the transfer takes place partially over the sea surface, the strong swinging movement of the basket of the known device during transfer can moreover be avoided. This is particularly the case when the lifting by the first and/or second lifting means takes place substantially such that the transport means is situated substantially directly below the lifting means at the start of the lifting. Because the transport means can be self-propelling, this position is easy to reach.

[0006] The transport means applied in the device and method according to the invention can in principle be any transport means which comprises floating means and can be self-propelled, and which is moreover provided with coupling means for coupling to the first and/or second lifting means. It is thus possible for the transport means to comprise a lifeboat, for instance from fibre-reinforced unsaturated polyester resin, the hull of which forms the floating means.

[0007] A preferred embodiment of the device according to the invention is **characterized in that** the floating means of the transport means comprises at least two inflatable tubes which can come together on the front side in order to form a bow and which bound a central hull with which they are coupled together. The inflatable tubes not only provide for buoyancy but also for impact protection. The central hull provides for sufficient rigidity and load-bearing capacity. If desired, the tubes are connected at the rear by a rigid transom which comprises a carrier plate for a motor with which the transport means can be independently propelled. It is also possible however to provide the transport means with an inboard motor.

[0008] The device according to the invention can comprise different lifting means, wherein it is advantageous that the device comprises a first lifting means at the first location and a second lifting means at the second location. The first location particularly comprises a platform on which a crew is present which must be transported to the second location, or to which a crew must be transported from the second location. Although the first location will generally comprise a floating or jack-up platform, it can in principle comprise any equipment situated at sea, such as for instance a dredging vessel, a trailing suction hopper dredger or cutter suction dredger and the like.

[0009] A suitable first lifting means is situated at the first location, for instance on a platform, and can for instance comprise a per se known crane device of a platform. Such a crane device is generally connected to the platform deck and comprises a rotatable carrier boom, on the outer end of which a pulley is arranged, over which runs a lifting cable which can be connected releasably to the transport means by means of coupling means, preferably by means of a hook/eye connection. By winding

up or unwinding the lifting cable over the pulley the transport means is moved respectively away from or toward the sea surface.

[0010] A suitable second lifting means is situated at the second location, for instance on a supply ship, but preferably on shore, and can for instance comprise a per se known crane device, such as a so-called pedestal crane. Such a crane device comprises a carrier boom, on the end of which a pulley is arranged, over which runs a lifting cable which can be connected releasably to the transport means by means of coupling means. By winding up or unwinding the lifting cable over the pulley the transport means is moved respectively away from or toward the sea surface.

[0011] The coupling means of the transport means preferably comprise a carrying construction in the form of a rod assembly which is connected to the hull of the transport means and to which an engaging means is fixed for engaging on a corresponding engaging means of the lifting means. This rod assembly can in principle take any form suitable for being able to support the weight of the objects, particularly of the crew. The rod assembly preferably forms a cage construction of a number of rods running from the peripheral edge of the hull of the transport means to a centrally disposed engaging means. The central engaging means is situated at the highest point of the cage construction.

[0012] A subsequent preferred embodiment of the device according to the invention is **characterized in that** the coupling means comprise a carrying construction provided with a bottom in which the hull of the transport means can be received and carried, wherein the carrying construction is also provided with a rod assembly which is connected to the bottom and to which an engaging means is fixed for engaging on a corresponding engaging means of the lifting means. It is advantageous for the bottom to comprise a number of metal straps in which the hull of the transport means can be received.

[0013] In the present embodiment of the method according to the invention the coupling means is fixed to the first lifting means using the engaging means and is then lowered onto the sea surface from the first location, so that the coupling means comes to lie with at least its bottom below the water surface. The transport means is then coupled to the coupling means by moving the transport means toward the coupling means, this such that the transport means at least partially overlaps the bottom of the coupling means. By now lifting the coupling means using the first lifting means the bottom is pulled out of the water, wherein the transport means supports on the bottom and is hereby supported and co-displaced.

[0014] The invention also comprises the reverse method, wherein the transport means situated on a platform or other equipment at sea is placed in a coupling means according to the invention, wherein the transport means supports on the bottom of the coupling means and is supported thereby. The coupling means is fixed to the first lifting means using the engaging means and, with co-displacement of the transport means, then lowered onto the sea surface from the first location so that the coupling means comes to lie at least with its bottom below the water surface, and the transport means floats on the sea surface. The transport means is then uncoupled from the coupling means by sailing away. If desired, the coupling means can then be lifted onto the deck of the platform using the first lifting means.

[0015] When the transport means is applied for transferring persons, the transport means can if desired be provided with seats. Such an embodiment of the transport means preferably comprises at least 4, more preferably at least 8, still more preferably at least 12 and most preferably at least 20 seats. The transfer speed (the number of objects transferred per unit of time) can hereby be further increased.

[0016] A further preferred embodiment of the device comprises a transport means which can be remotely controlled (for instance from the first and/or second location). Such a transport means provides more space, and the relative positions of the first lifting means, second lifting means and transport means can moreover be determined and set more effectively.

[0017] It is a further advantage that the coupling means can likewise be remotely coupled to or uncoupled from the lifting means. This can take place for instance by providing the device with electrical control wiring or by radio control. It is also possible to provide the transport means and/or the coupling means with catching means, for instance in the form of a funnel, in which the hook of a lifting means can be received.

[0018] This embodiment has the advantage that the coupling between transport means and lifting means is simplified and as it were brought about automatically. The coupling between lifting means and transport means is hereby made easier particularly in rough seas.

[0019] The invention will now be further elucidated on the basis of the following detailed description of a preferred embodiment, which is given solely by way of example and must not therefore be deemed limitative. In the figures:

figure 1 shows a schematic side view of a device according to the invention;
figure 2 shows a schematic perspective view of a transport means according to the invention, and
figure 3 shows a schematic perspective view of a coupling means according to the invention.

[0020] A device according to the invention is shown with reference to figure 1. In the shown embodiment variant the device comprises a first lifting means 20, a second lifting means 10 and a transport means 30, which is shown at two different positions in the figure and which is shown in further detail in figure 2. According to an embodiment of the invention, transport means 30 comprises floating means in the form of two inflatable lateral tubes 31 which come together at the front side so as to form a

bow 32, and which bound on both sides a central hull 33, to which they are connected. A floor 34 covers hull 33 and inflatable tubes 31, which are transversely connected at the rear by a transom 35. Transport means 30 can be self-propelled in that it is provided with an outboard motor 36 with propeller 37. Transport means 30 also comprises coupling means 38 for coupling to lifting means (10, 20). In the shown variant coupling means 38 comprise an eye 381 which can engage on a corresponding hook of lifting means (10, 20). Eye 381 is rigidly connected to a carrying construction in the form of a rod assembly 382 connected to central hull 33. The rod assembly forms a cage construction wherein eye 381 is situated at the highest point of the cage construction. For the purpose of transferring persons, transport means 30 is also provided with seats 39. For the sake of clarity only 3 seats 39 are shown in the figure, but transport means 30 can comprise up to 20 seats and more. Transport means 30 is further provided with a control console 40 which can preferably be remotely controlled.

[0021] Using the shown device persons can be transferred in efficient and safe manner from and to a first location at sea and to and from a second location. In the shown variant the second location comprises a quay 1 on shore, where the crew of an offshore platform 2 is located. The first location comprises platform 2 which is anchored in ground 200 by means of four support legs 3 (only two of which are visible). Platform 2 is height-adjustable. Quay 1 is provided with a second lifting means 10. Lifting means 10 comprises a carrier boom 11 which is rotatable by means of piston 14 and which supports on support construction 15 and is provided at the outer end with a pulley over which runs a lifting cable 12. Lifting cable 12 can be operated by means of winch 16 and connected releasably to eye 381 of transport means 30 by means of hook 13. By winding up lifting cable 12 over the pulley the transport means 30 is moved away from sea surface 100. By unwinding lifting cable 12 over the pulley the transport means 30 is moved toward sea surface 100. A first lifting means 20 is situated on jack-up platform 2 and takes the form of a per se known crane device for a platform. Such a lifting means 20 is connected to platform deck 22 via a carrying structure 21 and comprises a rotatable carrier boom 23, at the outer end of which a pulley 24 is arranged over which runs a lifting cable 25, which can be connected releasably to eye 381 of transport means 30 by means of a hook 26. Carrier boom 23 can be rotated around pivot point 27 by taking in or paying out traction cable 28. Transport means 30 is moved away from sea surface 100 by winding up lifting cable 25 over pulley 24 and/or pivoting carrier boom 23 in the direction R. Transport means 30 is moved toward sea surface 100 by unwinding lifting cable 25 over pulley 24 and/or pivoting carrier boom 23 in the direction opposite to direction R.

[0022] The crew of platform 2 is transferred from quay 1 to offshore platform 2 by embarking the crew in transport means 30 on shore in stationary situation at position A (see figure 1), then coupling transport means 30 to first lifting means 11 and hereby lowering it from position A to sea surface 100 (position B). Transport means 30 is then uncoupled from first lifting means 11 and brought under its own power to position C in the vicinity of offshore platform 2. Transport means 30 is then preferably situated substantially directly below second lifting means 20, as shown. Because transport means 30 can travel independently, this position is easy to reach. Eye 381 of transport means 30 is then coupled to hook 26 of second lifting means 20, wherein the control takes place remotely. First lifting means 20 subsequently lifts transport means 30 from sea surface 100 to position D, and then substantially horizontally from position D to E, to a position on the deck of platform 2 (position F). It will be apparent that the above described transfer can also be performed in reverse sequence. In such a method a crew can for instance be transferred from platform 2 to quay 1, wherein the above described steps are performed in reverse sequence.

[0023] According to the invention the transfer of transport means 30 from sea surface 100 to deck 22 of platform 2 or to quay 1, and vice versa, is preferably performed by making use of coupling means 40 as shown in figure 3. Coupling means 40 comprises a carrying construction in the form of a frame 41 provided with a bottom in the form of an assembly of straps 42, for instance of metal. Straps 42 are fixed at their outer ends to carrying construction 41, this such that they are situated at a distance from each other so that the bottom is water-permeable. Straps 42 form a bottom in which (the hull of) a transport means 30 can be received and carried. Frame 41 is further connected to rod assembly 43, to which an engaging means in the form of eye 44 is fixed for engaging on a corresponding engaging means of a lifting means. Rod assembly 43 comprises four rods 431 connected rigidly to frame 41 and provided at their outer ends with eyes 432, in which engage flexible suspending rods 433 which then lead to eye 44. It will be apparent that many variants can be applied and that the present embodiment is given solely by way of example. Finally, frame 41 is provided with at least one end plate 45 which, in the position of coupling means 40 situated partially under water, indicates where coupling means 40 is situated and further determines the position to which coupling means 40 extends. For the purpose of transferring for instance a crew to platform 2, according to the invention coupling means 40 is attached using eye 44 to a crane 20 situated on platform 2 and then lowered from platform 2 onto sea surface 100. At least the bottom of coupling means 40 herein comes to lie below water surface 100. Transport means 30 is then moved under its own power toward coupling means 40, this such that transport means 30 at least partially overlaps straps 42 of coupling means 40. Frame 41 together with straps 42 is now pulled out of the water by lifting coupling means 40 using crane 20, wherein transport means 30 supports on straps 42 and is thereby supported and co-displaced. It will be apparent that a reverse method is also possible, wherein a crew is trans-

ferred from a platform 2 to quay 1. In such a method a transport means 30 situated on platform 2 is placed in a coupling means 40 according to the invention, wherein transport means 30 supports on straps 42 of the bottom of coupling means 40 and is supported thereby. Coupling means 40 is subsequently attached to crane 20 using eye 44 and, with co-displacement of transport means 30, then lowered from platform 2 onto sea surface 100 so that at least the bottom of coupling means 40 comes to lie below water surface 100 and transport means 30 floats on sea surface 100. Transport means 30 is then uncoupled from coupling means 40 by sailing away therefrom. If desired, coupling means 40 can then be lifted onto deck 22 of platform 2 using crane 20.

[0024] The above described transfer method takes place partially via the sea surface, although it has nevertheless been found more efficient than the known method, wherein objects are transferred from platform 2 to a ship and then to shore. The transfer is moreover safer, and can also be carried out in rougher seas.

Claims

1. Device for transferring objects from a first location at sea to a second location, and vice versa, wherein the device comprises at least one lifting means and a transport means, with the proviso that the transport means comprises floating means and can be self-propelled, and the transport means comprises coupling means for coupling to the lifting means.

2. Device as claimed in claim 1, **characterized in that** the floating means of the transport means comprises at least two inflatable tubes which can come together on the front side in order to form a bow and which bound a central hull with which they are coupled together.

3. Device as claimed in claim 1 or 2, **characterized in that** the transport means is suitable for transferring the crew of an offshore platform.

4. Device as claimed in any of the foregoing claims, **characterized in that** the device comprises a first lifting means at the first location and a second lifting means at the second location.

5. Device as claimed in any of the foregoing claims, **characterized in that** the coupling means comprise a carrying construction in the form of a rod assembly which is connected to the hull of the transport means and to which an engaging means is fixed for engaging on a corresponding engaging means of the lifting means.

6. Device as claimed in any of the foregoing claims, **characterized in that** the coupling means comprise a carrying construction provided with a bottom in which the hull of the transport means can be received and carried, wherein the carrying construction is also provided with a rod assembly which is connected to the bottom and to which an engaging means is fixed for engaging on a corresponding engaging means of the lifting means.

7. Device as claimed in claim 6, **characterized in that** the bottom comprises a number of metal straps.

8. Device as claimed in any of the claims 5-7, **characterized in that** the engaging means comprises an eye or hook which can engage on a corresponding hook or eye of the lifting means.

9. Device as claimed in any of the foregoing claims, **characterized in that** the coupling means can be remotely coupled to or uncoupled from the lifting means.

10. Method for transferring objects from a first location at sea to a second location, wherein a transport means which comprises floating means and can be self-propelled is coupled to and carried by a first lifting means from the first location to the sea surface, wherein the transport means is then uncoupled from the first lifting means and carried under its own power into the vicinity of the second location, and wherein the transport means is subsequently coupled to and carried from the sea surface to the second location by a second lifting means.

11. Method as claimed in claim 10, **characterized in that** the lifting by the first and/or second lifting means substantially takes place such that the transport means is situated substantially directly below the lifting means at the start of the lifting.

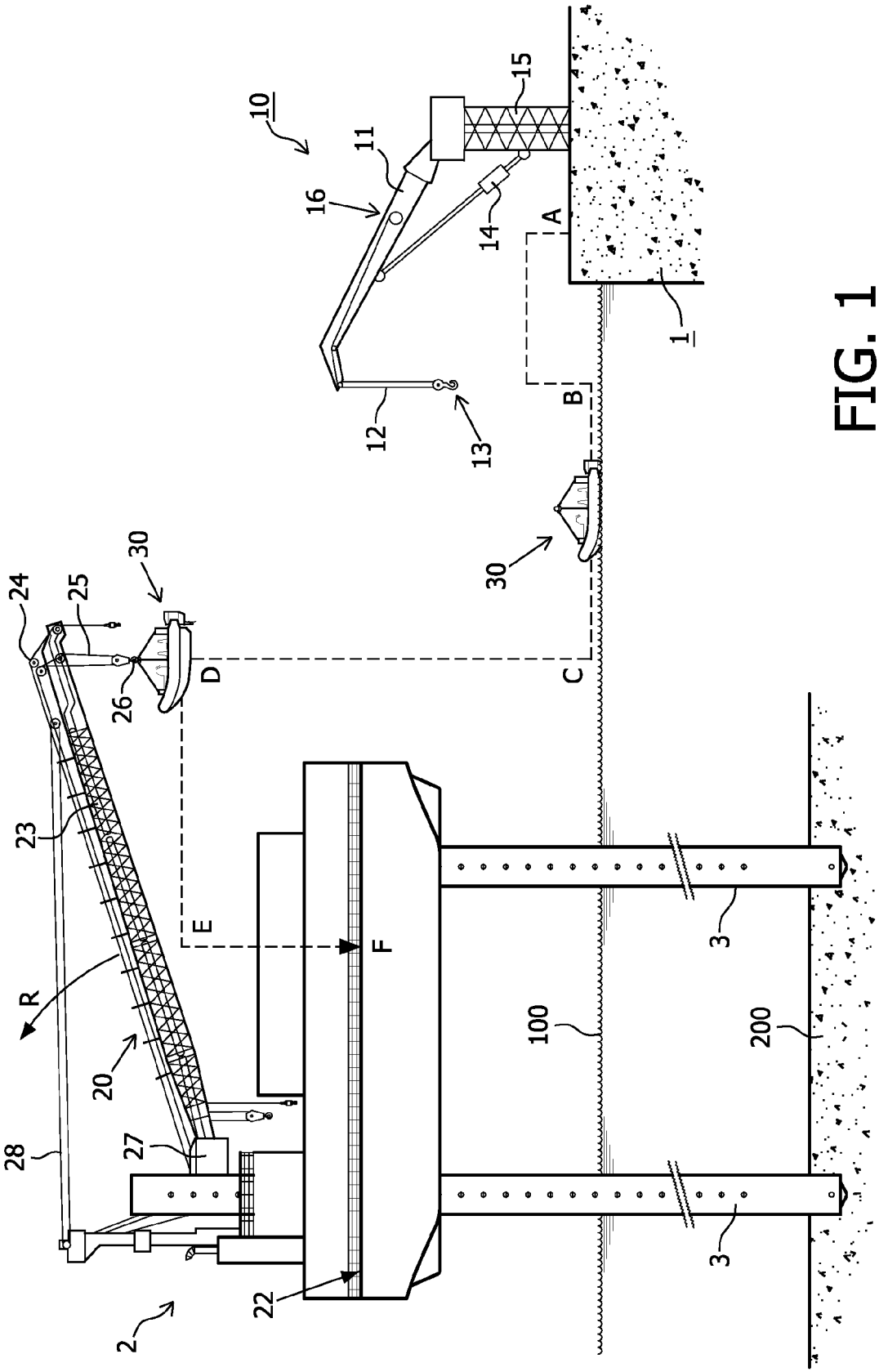

FIG. 1

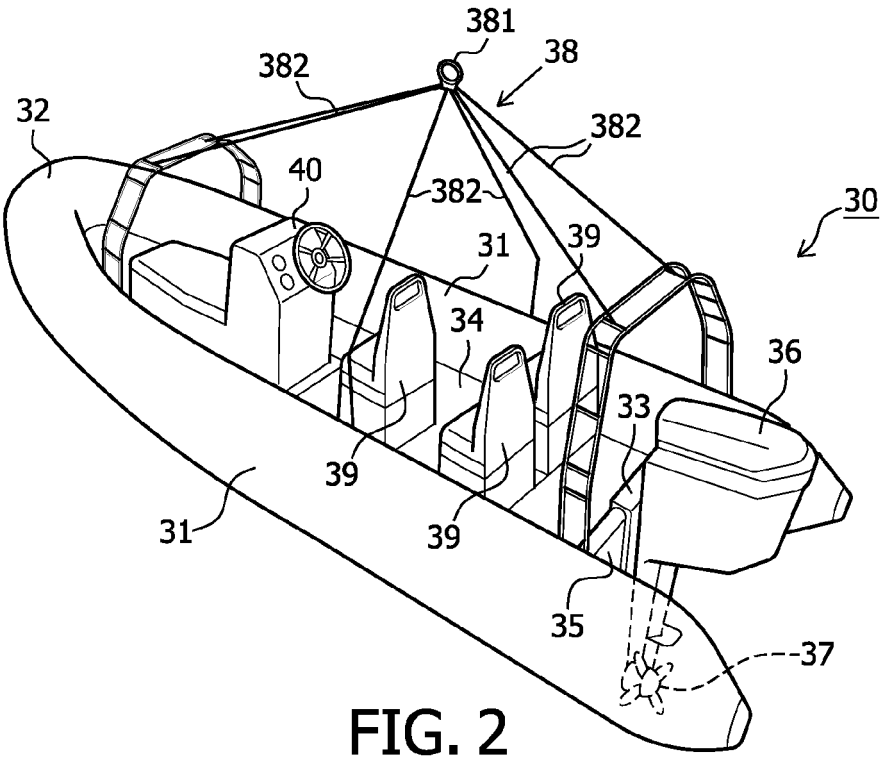
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FIG. 2

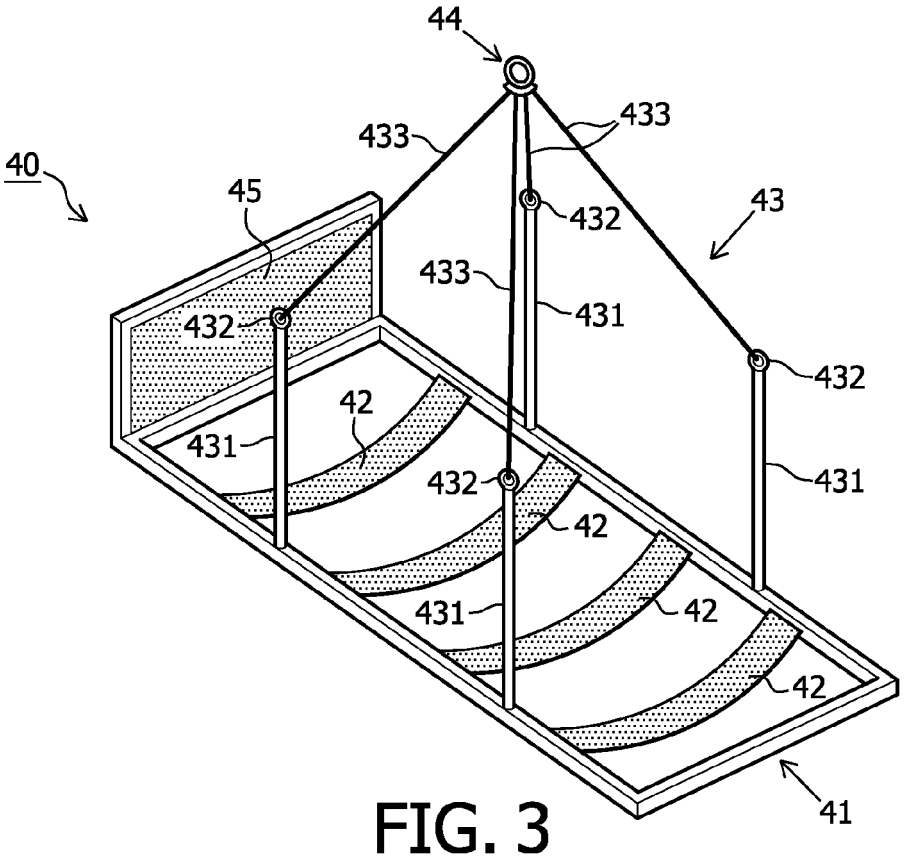
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FIG. 3

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EUROPEAN SEARCH REPORT

Application Number
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B66C
B63B
B65G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	27 May 2010	van Rooij, Michael

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