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54 **A device for transfer of persons and/or goods to and/or from a pelagic structure.**

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73 Proprietor: **Kvaerner Brug A/S**
P.O. Box 3610 Gb
N-0135 Oslo 1 (NO)

72 Inventor: **Slotnaes, Jens M.**
N-2350 Nes Hedmark (NO)

74 Representative: **Warren, Francis Charles et al**
Baron & Warren 18 South End Kensington
London W8 5BU (GB)

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Description

The present invention relates to a device for transfer of persons and/or goods to and/or from a pelagic structure.

For this purpose different kinds of devices are previously known, for instance a basket connected to a crane, or a flexible, hose-like duct. Moreover, is known an accommodation ladder, of which several ladder sections are interconnected in such a manner that they form a zigzag connection between a vessel and a quay. Said device is, however, not appropriate in cases where the two ends of the device perform mutual movements. The most frequently used method of transfer is to use a helicopter.

FR—A—2 384 898 discloses a footbridge which is also for connection between a fixed installation and an oscillating installation, for example rigid and oscillating petroleum exploitation platforms. The footbridge consists of a central section and two end sections. One of the end sections is connected at one end to the central section by a hinge and at the other end by a hinge to a platform on the oscillating deck. The other end section is also connected at one end by a hinge to the central section and at the other end by a hinge to a rotating platform on a fixed deck.

It is an object of the present invention to provide a device, for transfer of persons and/or goods to and/or from a pelagic structure, which permits a safe connection between different kinds of structures, for instance a gravity platform, a mobile platform or a vessel and a floating or fixed member, such as a vessel or a quay and permits variable differences of height between the two ends of the device.

Accordingly, the present invention consists in a device for transfer of persons and/or goods to and/or from a pelagic structure, comprising a first bridge being pivotally connected to said structure and carrying at its free end, through a pivotal connection a second bridge, said second bridge being, at its free end, connected to a third bridge through a pivotal connection (see for instance FR—A—2 384 898), characterized in that the connection between the free end of the first bridge and the second bridge comprises a column equipped with a disc adapted to rotate in its own plane about the longitudinal axis of said column, said second bridge being pivotally connected for movement about an axis being parallel to the plane of said disc, and that the column is equipped with a piston/cylinder device, the length of which may be varied in the longitudinal direction of said column, the piston/cylinder device being pivotally connected to a location between the ends of said third bridge.

By the present invention, a safe and comfortable device which permits variable differences of height between the two ends of the device is thus achieved.

Further features of the device according to the invention will appear from an embodiment of the invention, which will be explained in connection

with the accompanying drawings, in which Figures 1 and 2 respectively show side views of the device in two different positions.

In the drawings reference numeral 1 is a pelagic structure, for instance a gravity platform or a mobile platform adapted to be used in connection with subsea production of hydrocarbons, or a deck of a vessel. The structure 1 carries a tower 2, on which a bridge 4 is pivotally mounted through a swivel ring 3 and a hinge 5, thus permitting the bridge to pivot in a vertical and a horizontal plane. The bridge 4 is suspended from the tower through a cable 6 or similar component determining the angular position of said bridge in a vertical plane.

At its free end said bridge 4 carries a column 7, being connected to said bridge through an annular platform 8 and a hinge 9. Said column 7 is connected to said tower 2 through a cable, rod or similar component 10 in such a manner that the longitudinal axes of the tower 2 and the column 7, respectively, are always mutually parallel, independently of the angular positions of the bridge 4.

Said column 7 carries at its lower end a rotatable disc 11, and is interiorly equipped with a pneumatic or hydraulic piston/cylinder device 12, which in the drawing is merely indicated by means of a dot/dash line.

Between the platform 8 and the column 7 is provided a curved stair 13 having its axis in the axis of the column. Moreover, said disc 11 carries a second bridge 14, and a second column 15 is provided at the free end of said second bridge 14 and carries a curved stair 16 having its axis parallel with the column 15. By means of cables, rods or similar components 17 and a gate 18 the second column 15 is always kept parallel with the column 7 and the tower 2. The lower end of the stair 16 is connected to a third bridge 19, which is extended at its free end by means of a ladder 20, which by means of hydraulic means 21 may pivot about a hinge 22 on the bridge 19. The free end of said ladder may be supported against a quay, a deck of a vessel or other pelagic structure by means of a guide member 23.

At a location 24 between the ends of the bridge 19, said bridge is suspended in the free end of the piston rod 25 of the piston/cylinder device 12. The rod 25 is guided in a guide 26 on the underside of the disc 11 on the column 7, in order to permit adjustment of the angle between the bridge 19 and the bridge 14.

The bridges 4, 14 and 19 are designed in such a manner as to form footbridges for persons or bridges for the transportation of goods.

When the device comprising said bridges has been brought properly in place by means of the different adjustment means and the free end of the ladder 20 is supported on a support structure, the various bridges are able to follow the possible movements of said support structure, in that the guide member 23 by means of suitable connecting means, such as for instance ropes or similar, or cybernetics, controls the effective length of the

cable 6 and the hydraulic devices 12 and 21, in such a manner that the various bridges assume approximately the same angle of inclination, while the columns 7 and 15 maintain their vertical positions, and simultaneously the horizontal distance between the structure 1 and the end of the ladder 20 may vary, while maintaining continuous footbridges, all of which having the same angle of inclination.

Claims

1. A device for transfer of persons and/or goods to and/or from a pelagic structure, comprising a first bridge (4) being pivotally connected to said structure (1) and carrying at its free end, through a pivotal connection (7, 8, 9, 11), a second bridge (14), said second bridge being, at its free end, connected to a third bridge (19) through a pivotal connection characterized in that the connection between the free end of the first bridge (4) and the second bridge (14) comprises a column (7) equipped with a disc (11) adapted to rotate in its own plane about the longitudinal axis of said column (7), said second bridge (14) being pivotally connected for movement about an axis being parallel to the plane of said disc (11), and that the column (7) is equipped with a piston/cylinder device (12), the length of which may be varied in the longitudinal direction of said column (7), the piston/cylinder device (12) being pivotally connected to a location (24) between the ends of said third bridge (19).

2. A device according to claim 1, characterized in that the connection between the second bridge (14) and the third bridge (19) comprises a second column (15) being connected to said disc (11) by means of cables, rods or similar (17).

3. A device according to claim 1, characterized in that the disc (11) on the first column (7) comprises a guide (26) for the piston rod (25) of the piston/cylinder device (12), said third bridge (19) being suspended on said rod (25).

4. A device according to any of claims 1 to 3, characterized in that the first column (7) is connected to the pelagic structure (1) by means of at least one cable, rod or similar component (10), in such a manner that the axis of said first column (7) is always kept parallel to an axis of said pelagic structure (1).

Patentansprüche

1. Vorrichtung zur Übergabe von Personen und/oder Gütern zu und/oder von einer pelagischen Konstruktion, mit einer ersten Brücke (4), die schwenkbar mit der Konstruktion (1) verbunden ist und durch eine Schwenkverbindung (7, 8, 9, 11) an ihrem freien Ende eine zweite Brücke (14) trägt, wobei die zweite Brücke an ihrem freien Ende durch eine Schwenkverbindung mit einer dritten Brücke (19) verbunden ist, dadurch gekennzeichnet, daß die Verbindung zwischen dem freien Ende der ersten Brücke (4) und der zweiten Brücke (14) eine Säule (7) umfaßt, die mit

einer Scheibe (11) ausgerüstet ist, die zum Drehen in ihrer eigenen Ebene um die Längsachse der Säule (7) ausgebildet ist, wobei die zweite Brücke (14) derart schwenkbar verbunden ist, daß sie sich um eine zur Ebene der Scheibe (11) parallele Achse bewegen kann, und daß die Säule (7) mit einer Kolben-Zylinder-Vorrichtung (12) ausgerüstet ist, deren Länge in Längsrichtung der Säule (7) veränderbar ist, wobei die Kolben-Zylinder-Vorrichtung (12) schwenkbar an einer Stelle (24) zwischen den Enden der dritten Brücke (19) angebracht ist.

2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Verbindung zwischen der zweiten Brücke (14) und der dritten Brücke (19) eine zweite Säule (15) umfaßt, die durch Trossen, Stangen oder ähnliches (17) mit der Scheibe (11) verbunden ist.

3. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Scheibe (11) an der ersten Säule (7) eine Führung (26) für die Kolbenstange (25) der Kolben-Zylinder-Vorrichtung (12) umfaßt, wobei die dritte Brücke (19) an dieser Stange (25) aufgehängt ist.

4. Vorrichtung nach einem der Ansprüche 1 bis 3, dadurch gekennzeichnet, daß die erste Säule (7) mit der pelagischen Konstruktion (1) durch mindestens eine Trosse oder ein ähnliches Element (10) derart verbunden ist, daß die Achse der ersten Säule (7) stets parallel zu einer Achse der pelagischen Konstruktion (1) gehalten wird.

Revendications

1. Dispositif pour le transfert de personnes et/ou de marchandises sur une structure pélagique et/ou à partir de celle-ci, comprenant une première passerelle (4) articulée sur ladite structure (1) et portant à son extrémité libre, par l'intermédiaire d'un raccordement articulé (7, 8, 9, 11), une seconde passerelle (14), ladite seconde passerelle étant reliée, à son extrémité libre, à une troisième passerelle (19) par l'intermédiaire d'un raccordement articulé, caractérisé en ce que le raccordement entre l'extrémité libre de la première passerelle (4) et la seconde passerelle (14) comprend une colonne (7) munie d'un disque (11) pouvant tourner dans son propre plan autour de l'axe longitudinal de ladite colonne (7), ladite seconde passerelle (14) étant articulée de façon à se déplacer autour d'un axe parallèle au plan dudit disque (11) et en ce que la colonne (7) est munie d'un dispositif de piston-cylindre (12), dont on peut faire varier la longueur suivant la direction longitudinale de ladite colonne (7), le dispositif de piston-cylindre (12) étant articulé en un endroit (24) situé entre les extrémités de ladite troisième passerelle (19).

2. Dispositif selon la revendication 1, caractérisé en ce que le raccordement entre la seconde passerelle (14) et la troisième passerelle (19) comprend une seconde colonne (15) reliée audit disque (11) au moyen de câbles, de barres ou analogues (17).

3. Dispositif selon la revendication 1, caracté-

risé en ce que le disque (11) porté par la première colonne (7) comprend un guide (26) pour la tige de piston (25) du dispositif de piston-cylindre (12), ladite troisième passerelle étant suspendue à cette tige (25).

4. Dispositif selon l'une quelconque des revendications 1 à 3, caractérisé en ce que la première

colonne (7) est reliée à la structure pélagique (1) au moyen d'au moins un câble, une barre ou un élément analogue (10), de façon que l'axe de ladite première colonne (7) soit toujours maintenu parallèle à l'axe de ladite structure pélagique (1).

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