Claims

1. A mobile docking apparatus comprising:

a platform having a plurality of platform sections forming a deck which is arranged to receive at least one floating/transportable object;

a collection-well arranged in the platform; and

a plurality of supporting legs movably coupled to the platform and configurable to be lowered to the seabed to anchor and/or support the apparatus,

wherein the platform is operable cooperatively with the lowered supporting legs to be adaptively raised or lowered with reference to a water-level to receive and lift the object, and

wherein the platform sections forming the deck are cooperatively arranged at respective angles to the longitudinal axis of the platform to enable fluid waste materials to be drained towards the collection-well.

2. The apparatus of claim 1, further comprising:

a pair of hull portions respectively arranged at the port and starboard side of the platform; and

a plurality of ballast tanks arranged in the platform and the hull portions, which are operable for adjusting a buoyancy of the apparatus to enable the platform to be adaptively raised or lowered.

3. The apparatus of claim 2, wherein the hull portions are formed integral with the platform.

4. The apparatus of claim 2, further comprising:

a plurality of trapezium-shaped like sections,

wherein each hull portion includes a side coupled to the platform and an opposite side from which one of the trapezium-shaped like sections is extended, and

wherein some of the ballast tanks are arranged in the trapezium-shaped like sections to enhance buoyancy of the hull portions.

5. The apparatus of any preceding claims, wherein the supporting legs include being arranged at the hull portions.

6. The apparatus of claim 5, wherein the supporting legs include at least two pairs of supporting legs respectively arranged at each hull portion.

7. The apparatus of any preceding claims, wherein at least one of the hull portions is configurable with at least one lifting crane.

8. The apparatus of claim 7, further including a set of guiding tracks arranged at the hull portions, wherein the at least one lifting crane is operable to be movable along the guiding tracks.

9. The apparatus of any preceding claims, further comprises at least one extension platform having a collapsible arrangement.

10. The apparatus of any preceding claims, further comprises a plurality of sensors configured to monitor for structural integrity of the apparatus.

11. The apparatus of claim 2, wherein the object is a vessel, and wherein each hull portion is configured with a ramp door to facilitate loading and/or unloading of cargo from the docked vessel.

12. The apparatus of claim 2, further comprising at least one passageway arranged within the platform to enable access between the pair of hull portions.

13. The apparatus of any preceding claims, wherein the supporting legs include respective spud cans movably arranged to substantially stabilize the anchored apparatus against the seabed, when the supporting legs are lowered.

14. The apparatus of any preceding claims, wherein each supporting leg includes at least a first drive unit hydraulically operable to raise or lower the platform, and the first drive unit is part of a hydraulic ring beam lifting system.

15. The apparatus of any preceding claims, wherein each supporting leg includes at least a second drive unit electrically operable to raise or lower the corresponding supporting leg, and the second drive unit is part of a rack and pinion gear-lifting system.

16. The apparatus of claim 15, wherein the second drive unit is configured to be operated based on a rack-and-pinion arrangement, and an associated driving gear.

17. The apparatus of any preceding claims, further comprises at least one water propulsion device to propel the apparatus.

18. The apparatus of any preceding claims, wherein the supporting legs are configurable includes being arranged to be ballastible to enable the supporting legs to be lowered to the seabed.

19. The apparatus of any preceding claims, further comprising respective locking devices configured to releasably lock the respective supporting legs in position, relative to the platform.

20. The apparatus of any preceding claims, further comprising a plurality of station keeping devices used in conjunction with the lowered supporting legs to securely anchor the apparatus to the seabed.

21. The apparatus of claim 20, wherein the station keeping devices include a spread mooring system.

22. The apparatus of claim 20, wherein the station keeping devices include a plurality of thrusters arranged with or without dynamic positioning configuration.

23. A method of operating a mobile docking apparatus, which includes a platform having a plurality of platform sections forming a deck which is arranged to receive at least one floating/transportable object, and a plurality of supporting legs movably coupled to the platform, the method comprises:

configuring the supporting legs to be lowered to the seabed to anchor and/or support the apparatus;

operating the platform cooperatively with the lowered supporting legs to adaptively raise or lower the platform with reference to a water-level to receive and lift the object; and

draining, by assistance of gravity, fluid waste materials from the platform sections forming the deck towards a collection-well arranged in the platform, wherein the platform sections forming the deck are cooperatively arranged at respective angles to the longitudinal axis of the platform.

24. The method of claim 23, wherein operating the platform cooperatively with the lowered supporting legs includes:

controllably de-ballasting or ballasting a plurality of ballast tanks arranged in the platform, a pair of hull portions and a plurality of trapezium-shaped like sections, wherein the hull portions are respectively arranged at the port and starboard side of the platform, wherein each hull portion includes a side coupled to the platform and an opposite side from which one of the trapezium-shaped like sections is extended.

25. The apparatus of claim 1, the floating/transportable object can be transferred to the platform by the means of:

- Floated-in by tugs or other mechanical means
- Lifted-in by cranes or other mechanical means
- Or moved into position through front and side ramp from onshore or another platform, with bottom supported rollers, skidding beams, transporters, or similar means

In this case, any of the object may or may not floatable, which may include one or more of the following:

- Ships, vessels, or floating offshore units
- Offshore production or maintenance units, including oil & gas facilities, accommodations, services and maintenance facilities
- Drilling packages, includes derricks and related drilling equipment, in which can be a "land-rig" package or offshore drilling packages.
- Work support units, including cranes, subsea or diving supports, windmill installation packages, pipe or cable laying equipment, workshops, etc
- This may include construction or maintenance material or consumables, such as drill pipes, pipeline, windmill components, drilling muds or other substances, chemicals for production or treatments, injection pumps, compressors units, etc.

26. The apparatus of claim 25, wherein the object and apparatus may operate together for one or more of the following applications:

- Jack-up or floating drilling rig, or hybrid
- Jack-up or floating support vessel, or hybrid
- Jack-up or floating work-boat, or hybrid
- Jack-up or floating processing units, or hybrid
- Jack-up or floating compression or pumping units, or hybrid
- Jack-up or floating substation/transmitter station, or hybrid
- Jack-up or floating accommodation, or hybrid

- Jack-up or floating maintenance support vessel, or hybrid
- Jack-up or floating mobile shipyard, or hybrid
- Jack-up or floating docking facility, or hybrid.