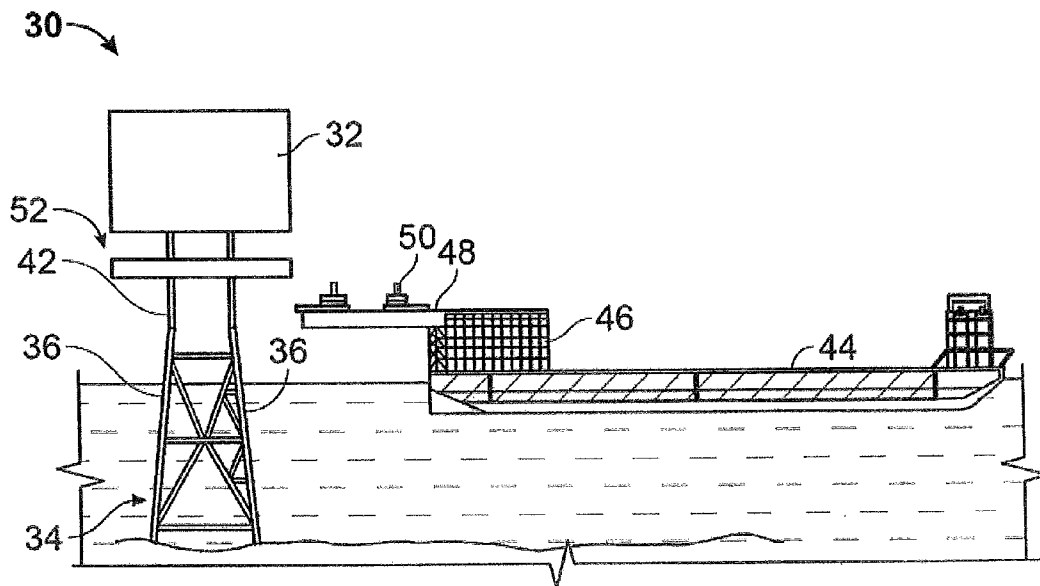




US 20140072371A1

(19) **United States**(12) **Patent Application Publication**
LIU et al.(10) **Pub. No.: US 2014/0072371 A1**(43) **Pub. Date: Mar. 13, 2014**(54) **PLATFORM DECK INSTALLATION AND
REMOVAL METHOD AND APPARATUS**(52) **U.S. Cl.**
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Helge Roraas, Houston, TX (US)(73) Assignee: **Boa Marine Services, Inc.**, Houston, TX
(US)(21) Appl. No.: **13/606,620**(22) Filed: **Sep. 7, 2012****Publication Classification**(51) **Int. Cl.**
E02B 17/08 (2006.01)
E02B 17/04 (2006.01)(57) **ABSTRACT**

An apparatus for loading a topside onto a jacket is provided. The apparatus may include: a projecting structure extending beyond a deck of a marine vessel wherein the projecting structure configured to support the topside and the projecting structure is dimensioned sufficiently long enough to allow the marine vessel to approach a submerged jacket and position the topside above the submerged jacket without having the marine vessel contact the jacket; and a support configured to support the topside above the projecting structure. A method for one of installing and removing a topside from a jacket may be provided. The method may include: positioning sponsos attached to a marine vessel around a jacket; supporting at least part of the weight of the topside on the sponsos; and one of attaching and detaching the topside and jacket.



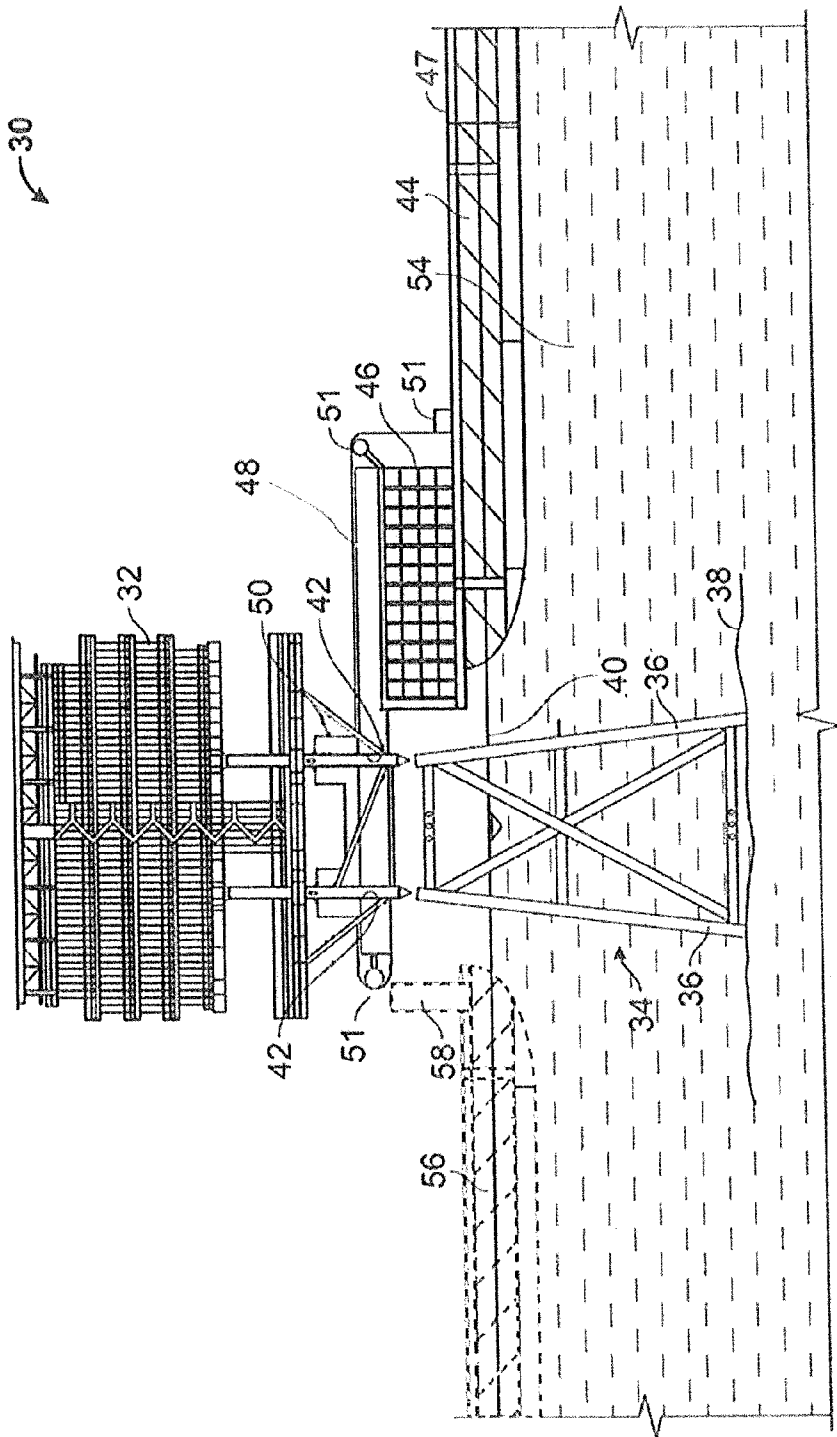
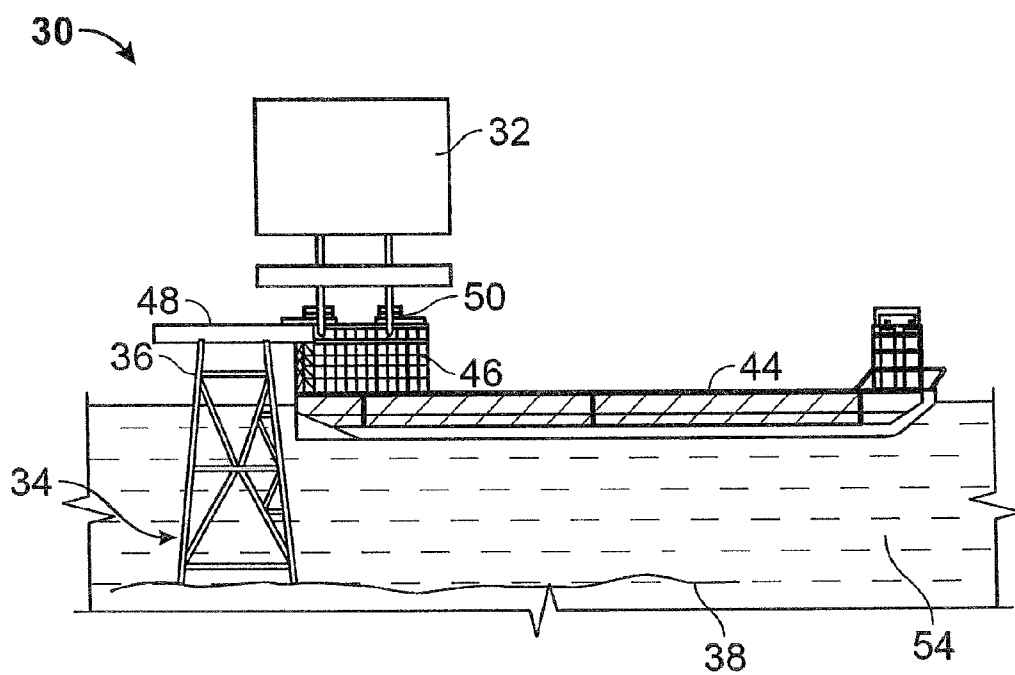
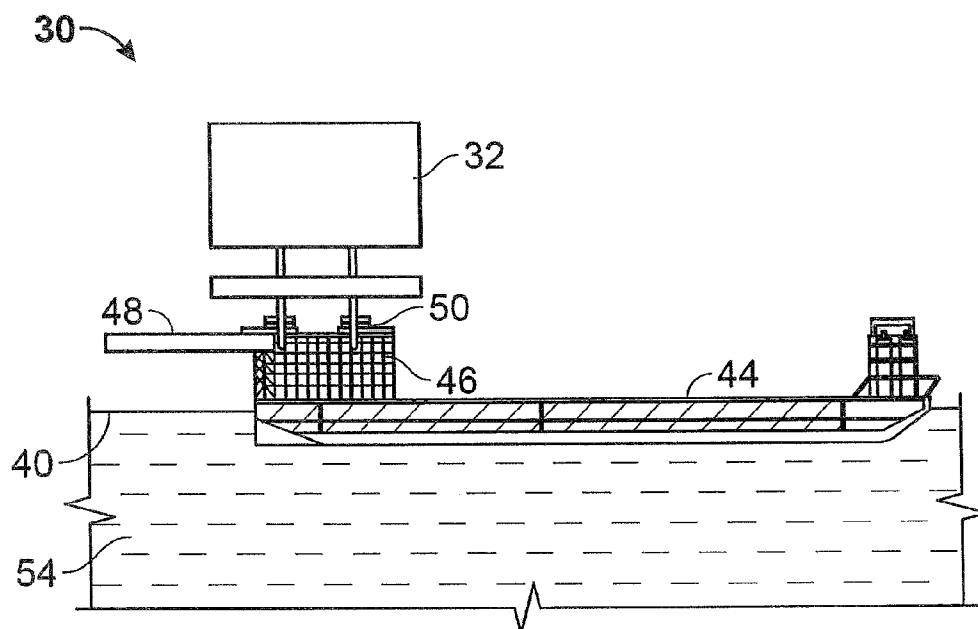


FIG. 1



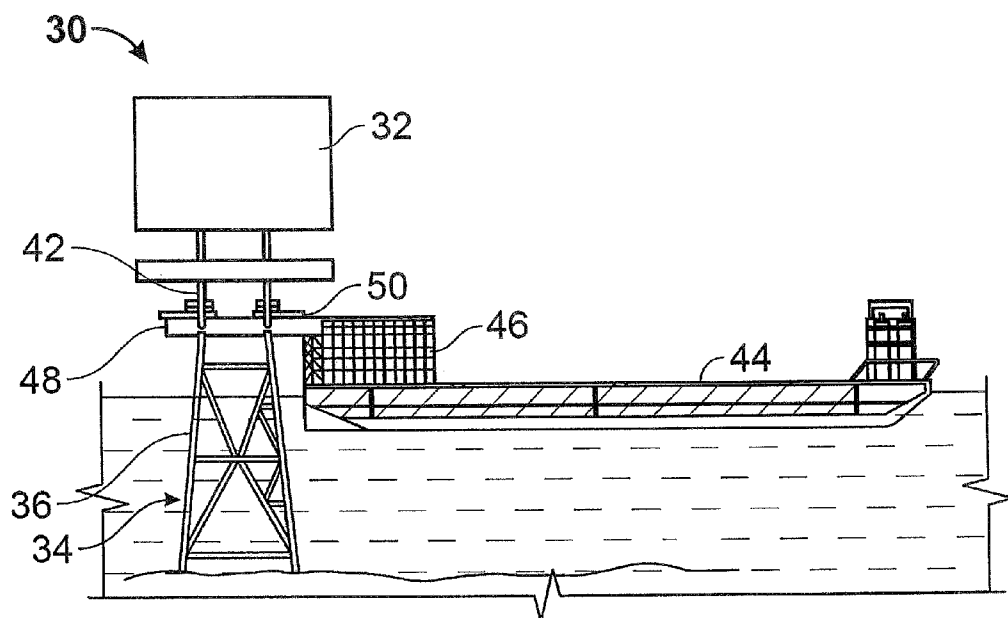


FIG. 4

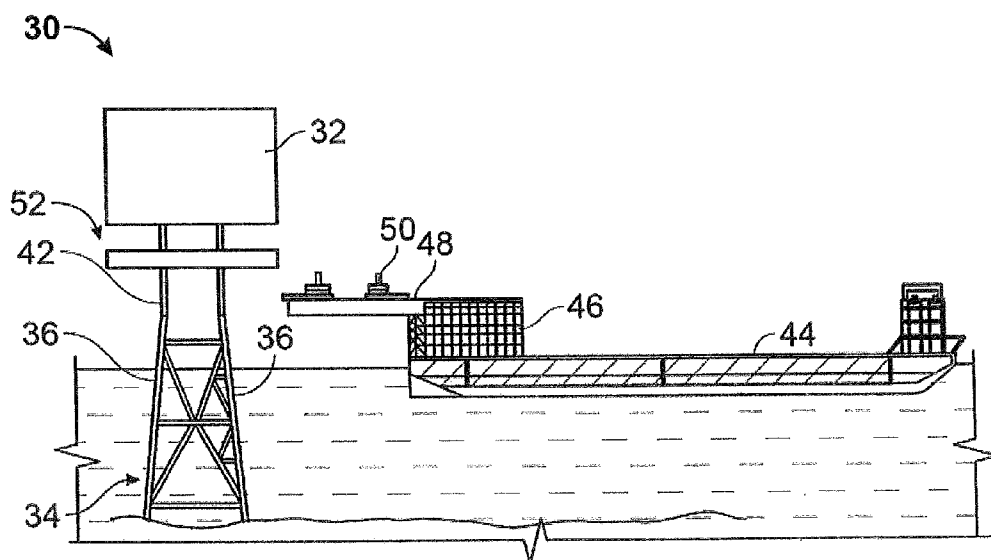


FIG. 5

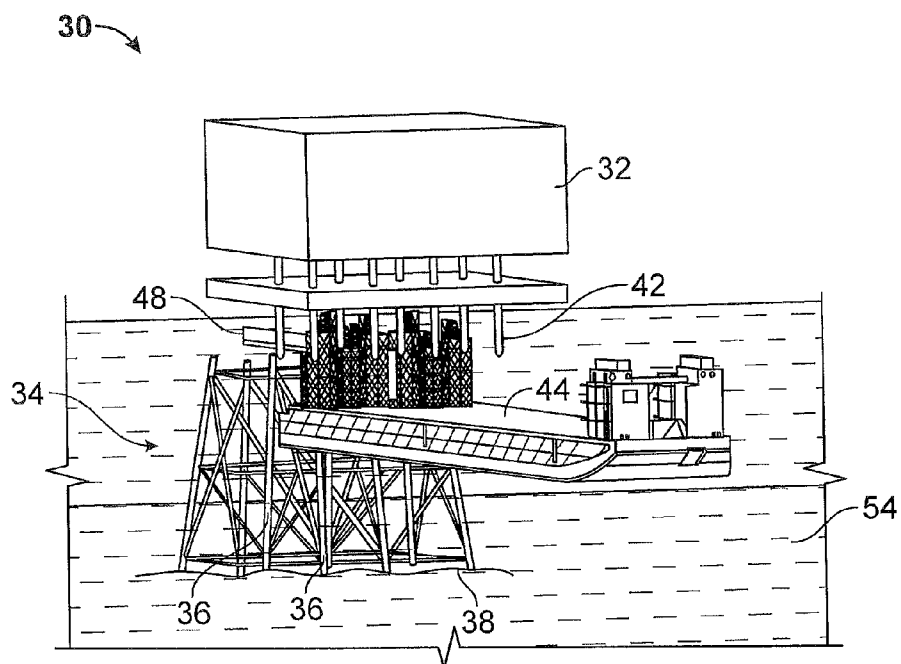


FIG. 6

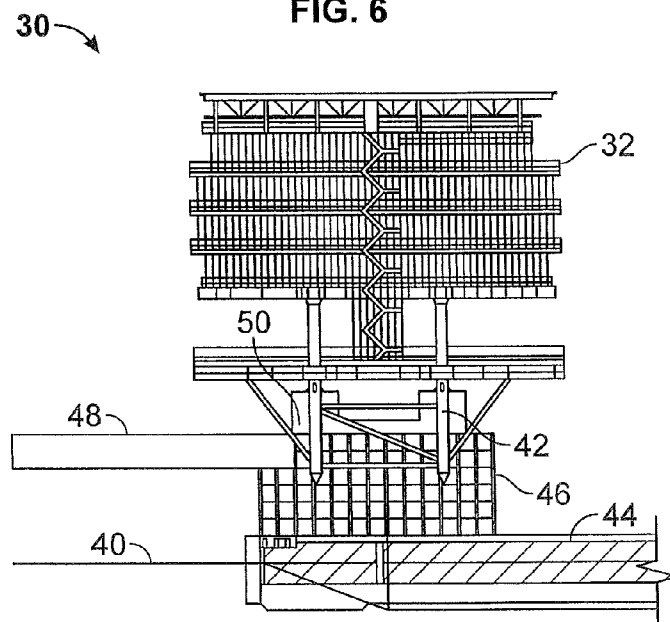


FIG. 7

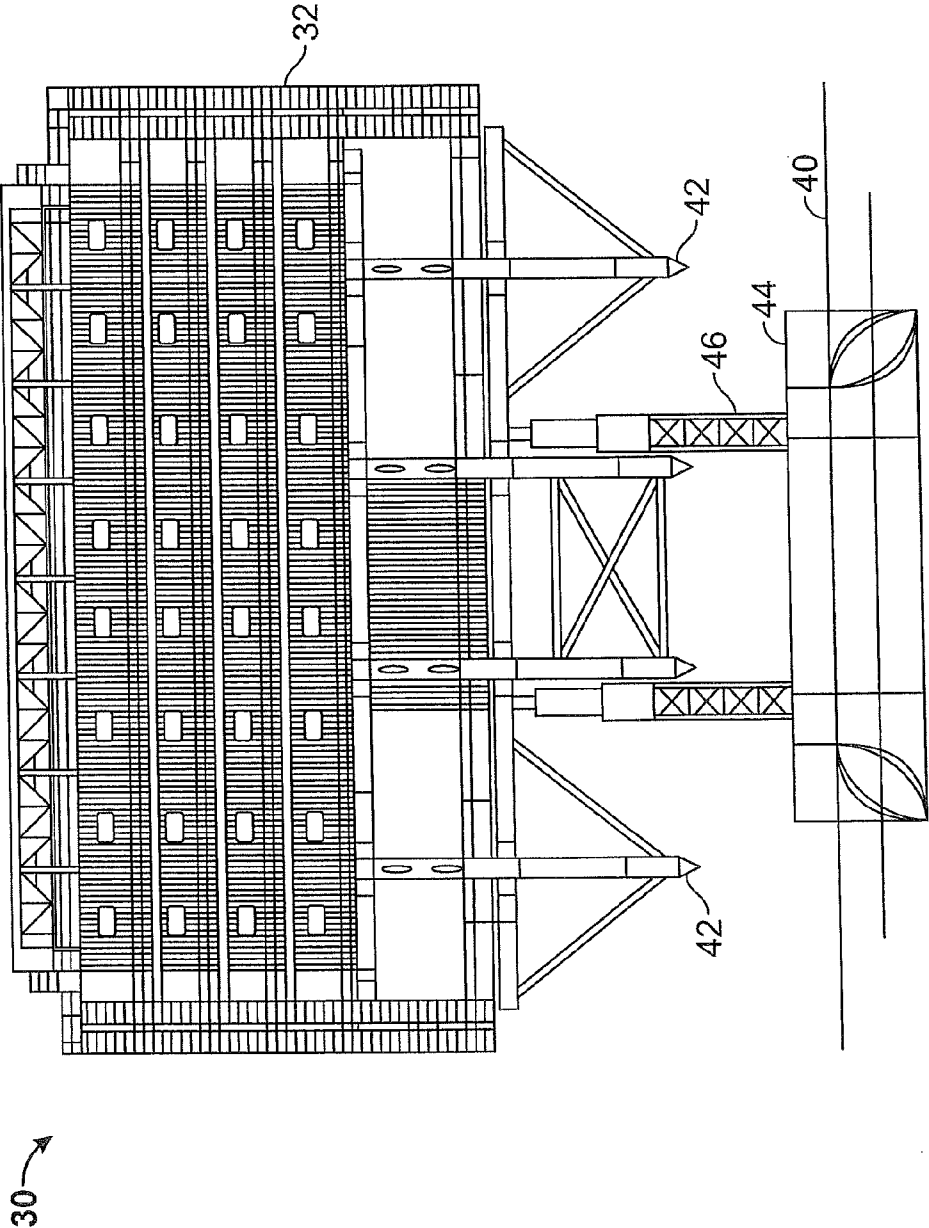


FIG. 8

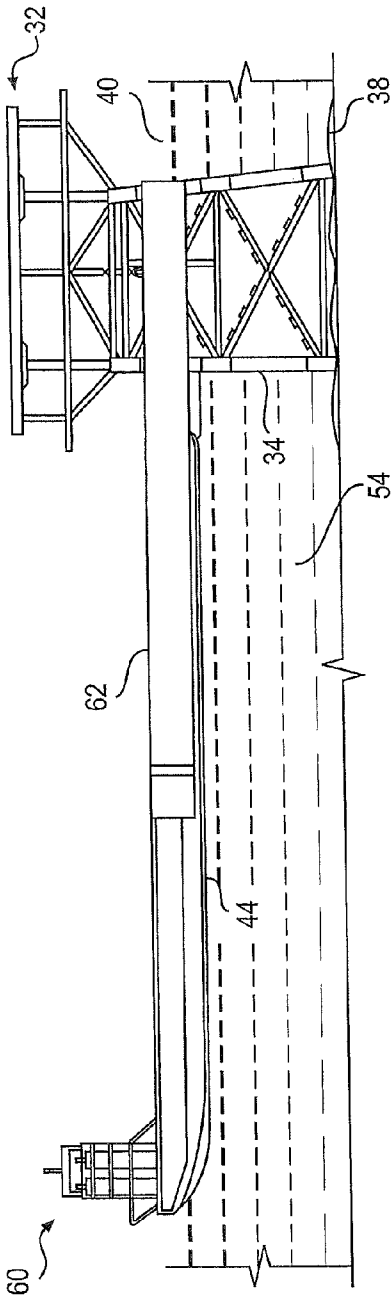


FIG. 9

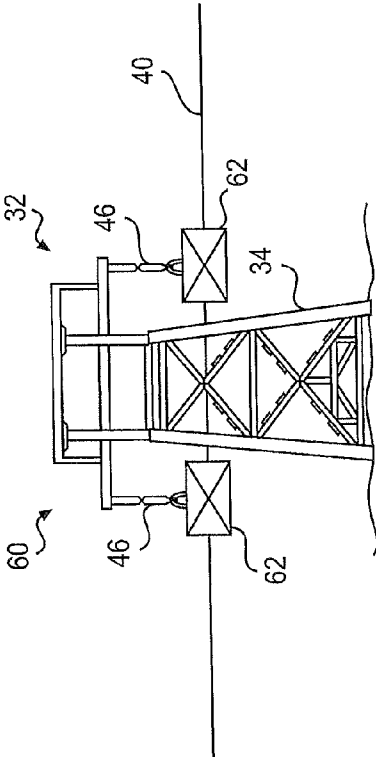
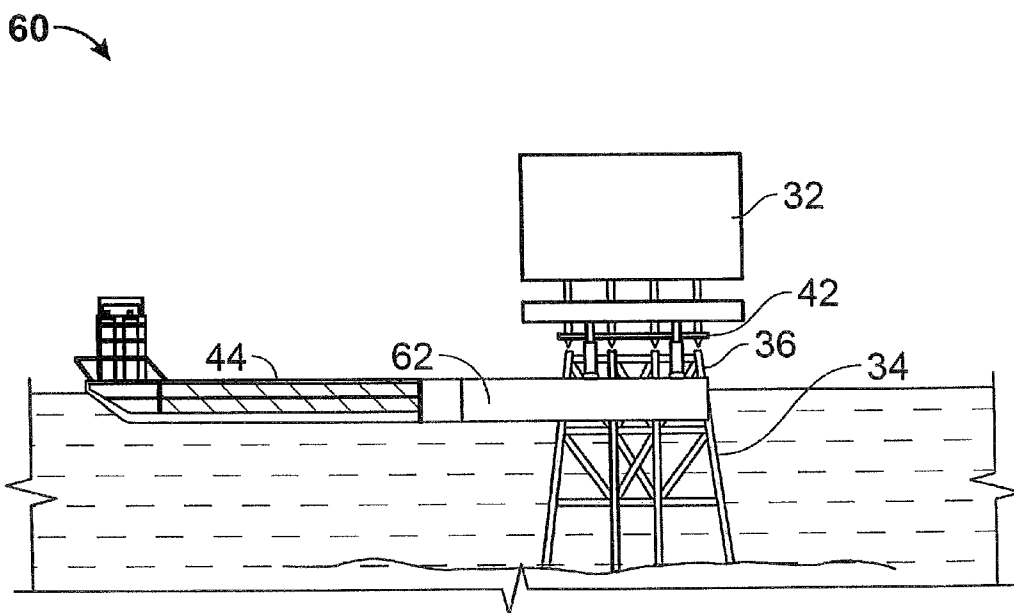
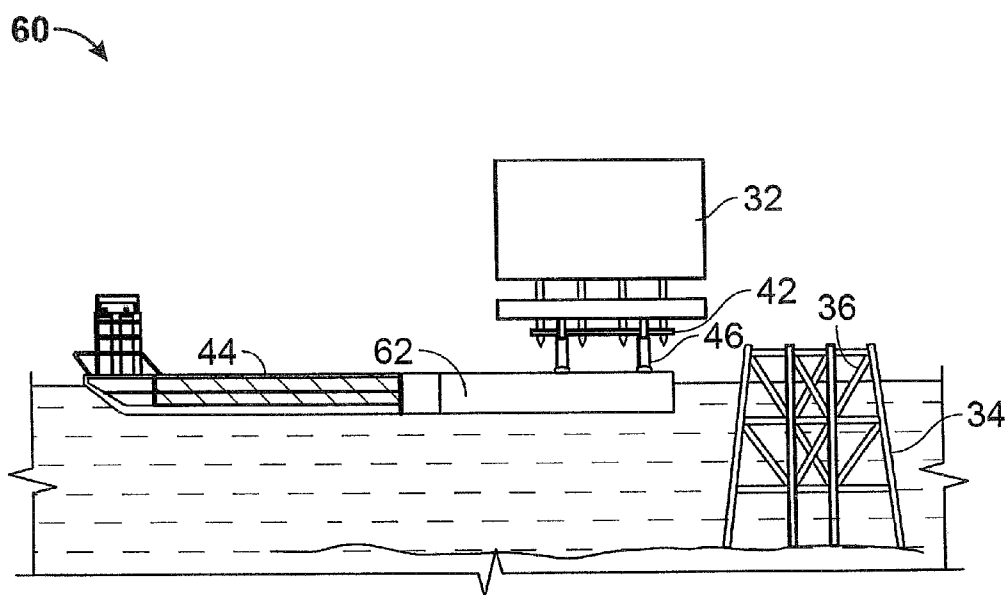


FIG. 10



60

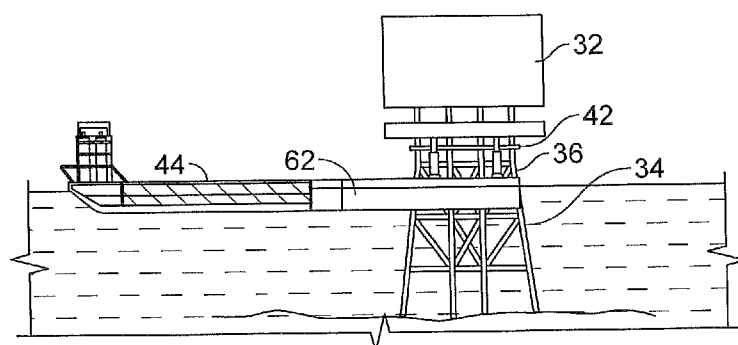


FIG. 13

60

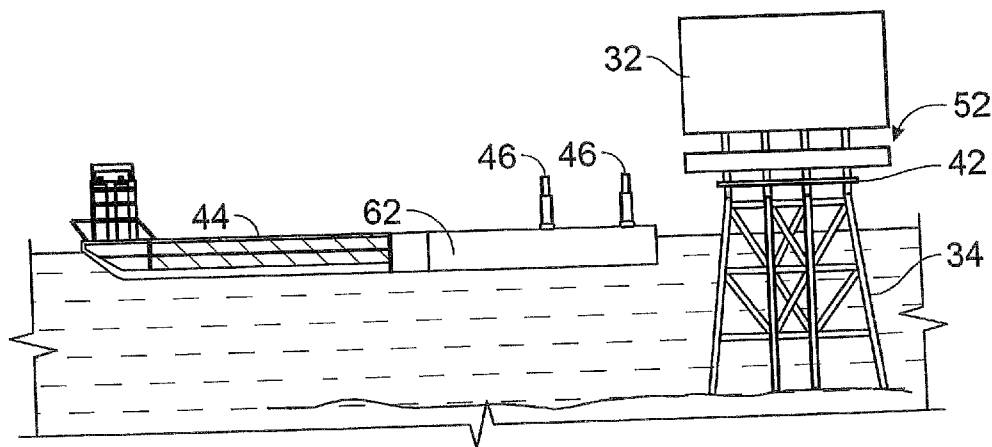


FIG. 14

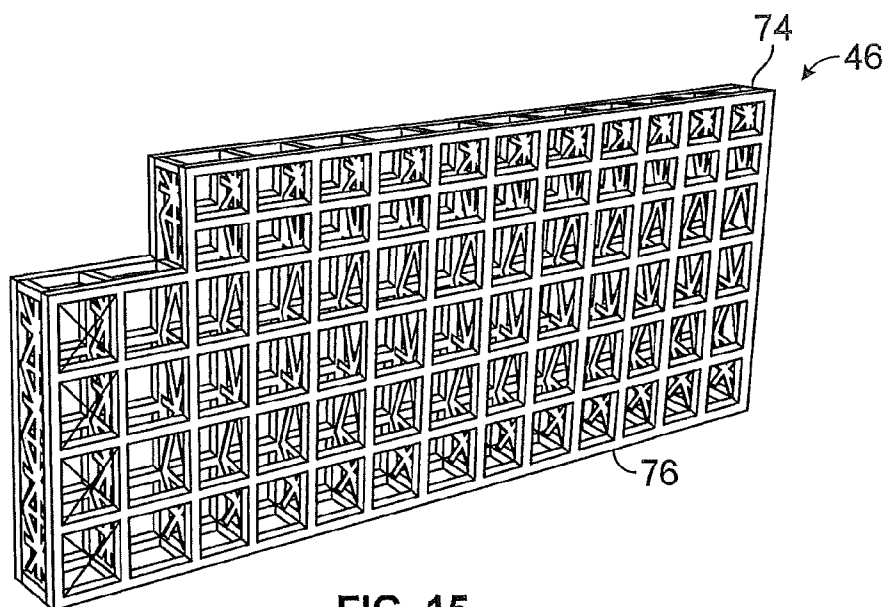


FIG. 15

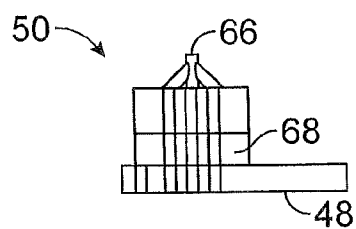


FIG. 16

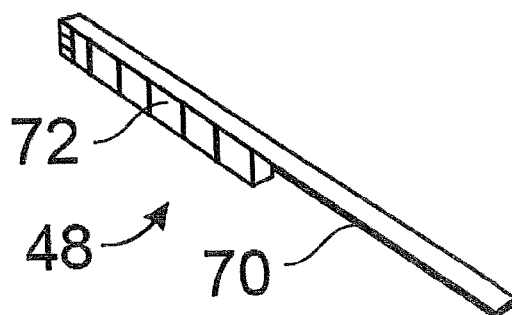


FIG. 17

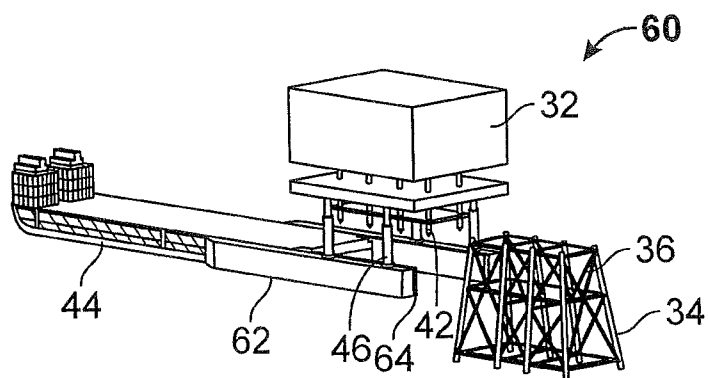


FIG. 18

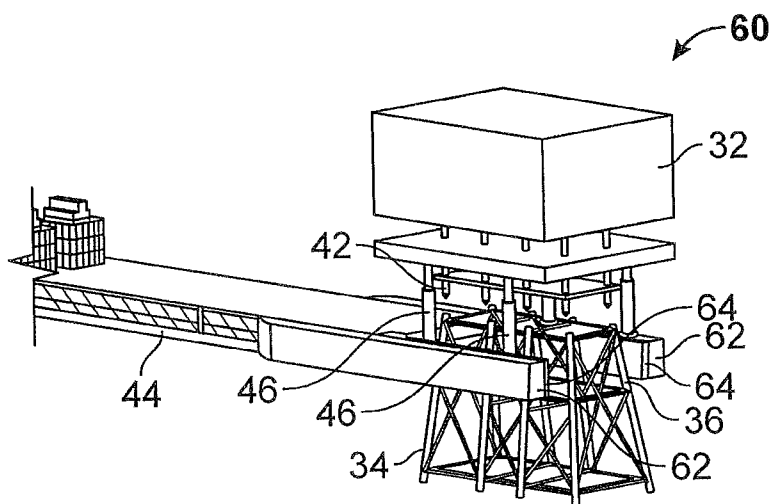
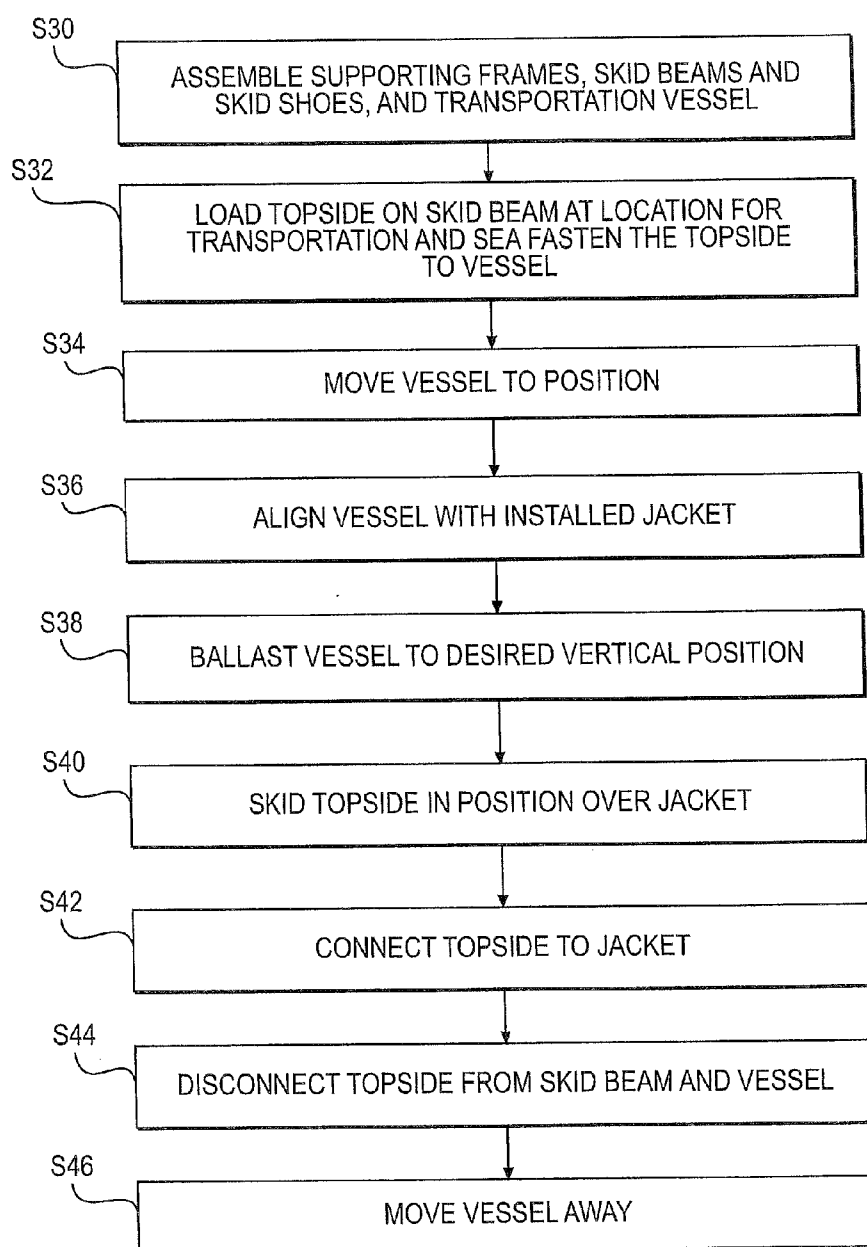
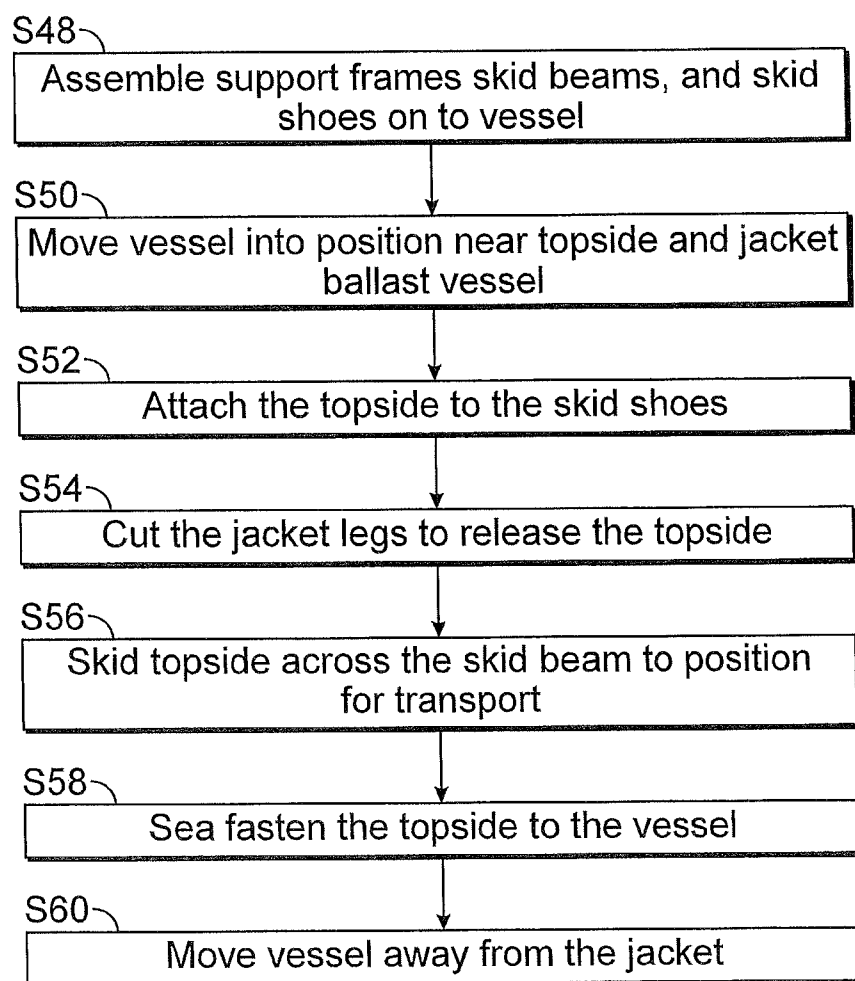
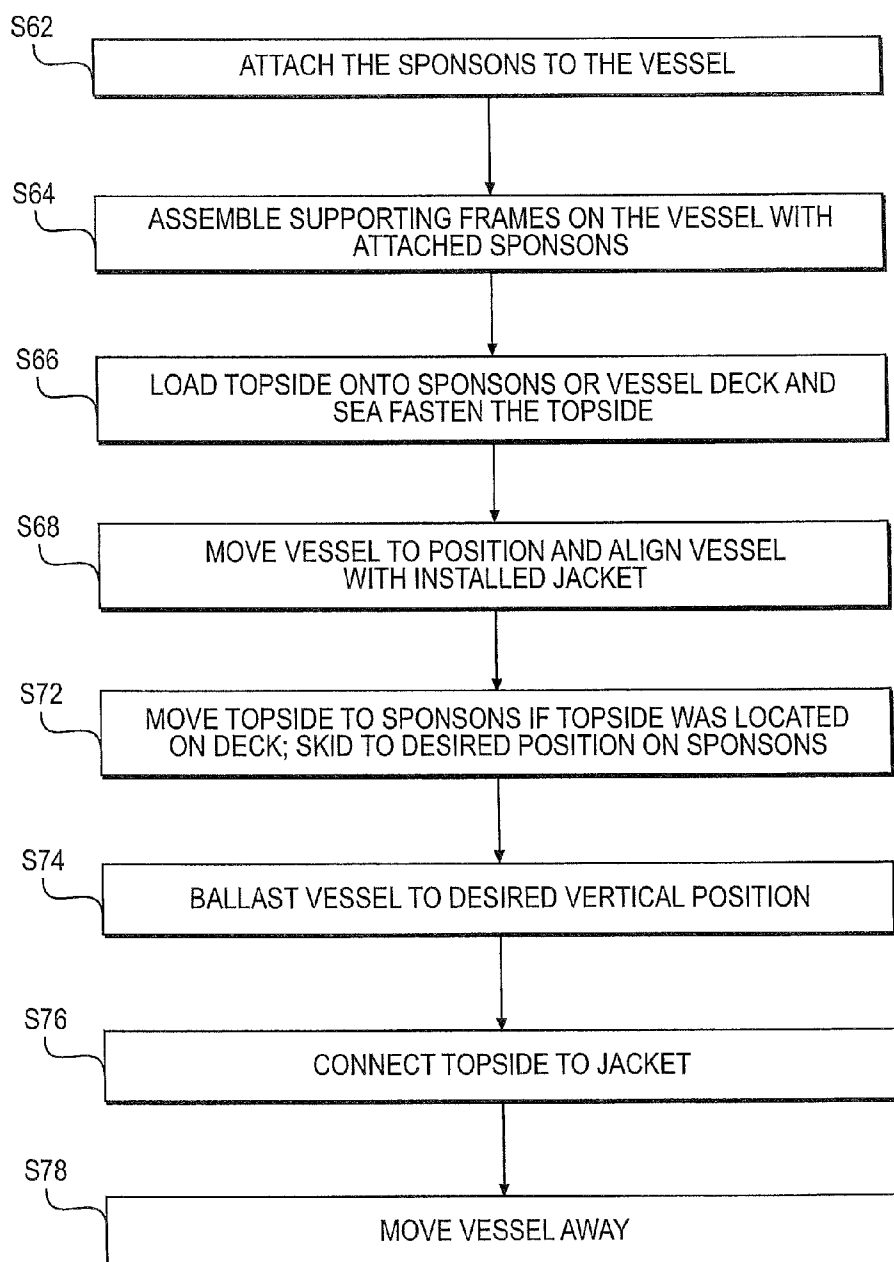


FIG. 19

**FIG. 20**

**FIG. 21**

**FIG. 22**

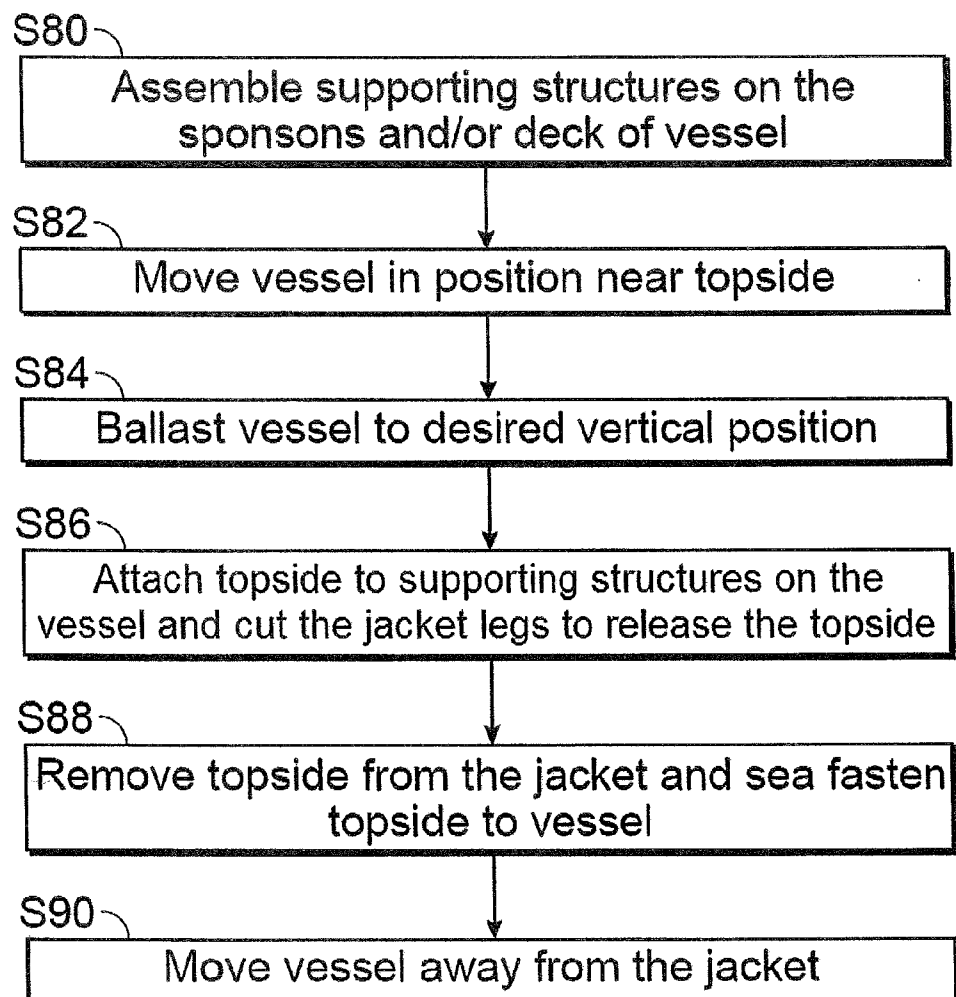


FIG. 23

PLATFORM DECK INSTALLATION AND REMOVAL METHOD AND APPARATUS

FIELD OF THE INVENTION

[0001] The present invention relates generally to a method and apparatus for loading heavy offshore oiling equipment onto a submerged support such as a jacket. More particularly, the present invention relates to a method and apparatus for loading a topside onto and/or off a jacket.

BACKGROUND OF THE INVENTION

[0002] As the demand for oil continues to increase, more and more oil fields are being identified as beneath the ocean floor. Traditionally, with offshore oil production platforms, either fixed or floaters, the topsides are installed to the substructures, jackets or hull, by a specially designed heavy lifting vessel such as a crane vessel. However, the use of heavy lifting vessels presents a variety of challenges including the reliability of being able to safely lift heavy structures, the availability of vessels capable of lifting required amounts of weight. Strict environmental requirements can create narrow weather windows in which operations may be done. High operational costs of using lifting vessels have encouraged the oil gas exploration and production industry to look for alternative ways to load heavy structures onto platforms.

[0003] For over the past several years, a technique referred to as the float-over topside installation technique has gradually gained momentum. It has not only been used in topside installation for fixed platforms already installed at the oil field, but has been used for floating support structures in both in-shore and offshore applications.

[0004] Float-over installation does not require the use of a heavy lifting vessel and therefore omits the challenging lifting operation. Only selected barges equipped with specially designed equipment are used in float-over operations. The technology is mature and the cost is relatively low compared to using heavy lifting vessels. Furthermore, float-over techniques can require shorter time and the weather window for performing such operations is wider than what is required in heavy lifting techniques.

[0005] However, the use of float-over technology is not without its drawbacks. Under current float-over techniques, when using a single barge or vessels for a fixed platform, there should be an opening wide enough between the legs of the jacket so that the barge carrying the topside can float in between the jacket legs. The barge will then move over and let the topside reach the position aligning with the jacket legs to prepare the jacket for the mating operating between the topside of the jacket. If there is not room for the barge to fit between the jacket legs, float-over operation can also be carried out using two barges where the barges are configured in a catamaran-type configuration. However, this is not favored for small platforms since the advantages of cost-efficiency disappear.

[0006] Many newer design jackets may have a wide opening between the jacket legs in order to accommodate the single barge float-over technique. However, many older jackets or ones that are traditionally designed may not have legs wide enough to accept the single barge. As such, they present additional difficulties in using a single barge or vessel with the float-over technique. Accordingly, it is desirable to provide a method and apparatus that can be used to more easily attach a topside to a similar structure such as a jacket.

SUMMARY OF THE INVENTION

[0007] The foregoing needs are met, to a great extent, by the present invention, wherein in one aspect an apparatus is provided that in some embodiments a method and apparatus is described that provides a new way to attach a topside to a substructure such as a jacket.

[0008] In accordance with one embodiment of the present invention, an apparatus for loading a topside onto a jacket is provided. The apparatus may include: a projecting structure extending beyond a deck of a marine vessel wherein the projecting structure configured to support the topside and the projecting structure is dimensioned sufficiently long enough to allow the marine vessel to approach a submerged jacket and position the topside above the submerged jacket without having the marine vessel contact the jacket; and a support configured to support the topside above the projecting structure.

[0009] In accordance with another embodiment of the present invention, a method for one of installing and removing a topside from a jacket may be provided. The method may include: positioning sponsons attached to a marine vessel around a jacket; supporting at least part of the weight of the topside on the sponsons; and one of attaching and detaching the topside and jacket.

[0010] In accordance with yet another embodiment of the present invention, a method for one of installing and removing a topside from a jacket may be provided. The method may include: locating a support beam proximate to the jacket; moving the topside along the support beam; and one of attaching and detaching the topside and the jacket.

[0011] There has thus been outlined, rather broadly, certain embodiments of the invention in order that the detailed description thereof herein may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional embodiments of the invention that will be described below and which will form the subject matter of the claims appended hereto.

[0012] In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of embodiments in addition to those described and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein, as well as the abstract, are for the purpose of description and should not be regarded as limiting.

[0013] As such, those skilled in the art will appreciate that the conception upon which this disclosure is based may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is a side view illustrating an apparatus for installing a topside onto the jacket.

[0015] FIG. 2 is a side view illustrating a topside and skid beam attached to a barge.

[0016] FIG. 3 is a side view illustrating a topside and skid beam located adjacent to a jacket.

[0017] FIG. 4 is a side view illustrating a topside moved into position over a jacket.

[0018] FIG. 5 is a side view of a topside attached to a jacket where a barge is moving away from the jacket.

[0019] FIG. 6 is a perspective view of a barge in position approximate to a jacket where a topside is being moved in position over the jacket.

[0020] FIG. 7 is partial side view of a topside float-on to a structure on a barge.

[0021] FIG. 8 is an end view of a topside loaded onto the barge.

[0022] FIG. 9 is a side view of a barge with sponsons located next to a jacket.

[0023] FIG. 10 is end view of a topside located over a jacket where the topside is still attached to sponsons.

[0024] FIG. 11 is a side view of a topside loaded onto sponsons.

[0025] FIG. 12 is a side view of a vessel located near a jacket and a topside located in position over the jacket.

[0026] FIG. 13 is a side view of vessel located next to a jacket on the topside which is connected with the jacket.

[0027] FIG. 14 is a side view of a vessel moving away from a jacket having a topside installed onto the jacket.

[0028] FIG. 15 is a perspective view of one of the designs of the supporting frame.

[0029] FIG. 16 is a side view of a skid shoe.

[0030] FIG. 17 is a perspective view of a skid beam.

[0031] FIG. 18 is a perspective view of a vessel having sponsons supporting a topside.

[0032] FIG. 19 is a partial perspective view of a topside mounted to sponsons located over a jacket.

[0033] FIG. 20 illustrates a method for installing a topside onto a jacket.

[0034] FIG. 21 illustrates a method for removing a topside from a jacket.

[0035] FIG. 22 illustrates another method for installing a topside onto a jacket.

[0036] FIG. 23 illustrates another method for removing a topside from a jacket.

DETAILED DESCRIPTION

[0037] The invention will now be described with reference to the drawing figures, in which like reference numerals refer to like parts throughout. An embodiment in accordance with the present invention provides a method and apparatus for loading a topside onto a jacket or other similar structure and also unloading a topside from a jacket. In some embodiments, the installation and removal techniques may be used for fixed platform topsides weighing up to 4000 mt.

[0038] The apparatus and methods described herein fall primarily within two embodiments using skid-on techniques. In a first embodiment, a pair of skid beams are used to carry the topside over the jacket legs. In the other embodiments, sponsons are attached to a barge or other vessel and extend out of from the barge or vessel. In the embodiments, the skid beams or the sponsons carry the topside over the jacket legs. The mating process of the topside to the jacket legs is similar to that used in the known float-over at site techniques.

[0039] In the reverse process, in accordance with an embodiment of the invention, the skid-on technology can be applied to the topside removal. After reading the disclosure made herein one of ordinary skill in the art can using a case-by-case basis and examining the different facts of each particular application may be selected from one of the two

options, the skid beam or the sponsons to attach or detach a topside and jacket. Skid beam techniques and sponsons techniques will be described below.

[0040] FIG. 1 shows a skid beam system 30 used in accordance with the skid beam technique for attaching and detaching a topside 32 to the jacket 34. The topside 32 is the structure that is often located above the waterline 40 at an offshore platform. The topside 32 usually sits upon pre-installed structure referred to herein as a jacket 34. The jacket 34 and topside 32 are well known in the industry and will not be described in additional detail. The application herein refers generally to a jacket 34 as a submerged structure which supports the topside 32. One of ordinary skill in the art will appreciate that topside 32 may be attached to other structures such as floating structures well known in the industry that may perform the function of supporting the topside 32 as that of a jacket 34 attached to the sea floor 38 as shown. Thus, the term jacket 34 as used here is only meant to relate generally to a support structure and is not limited to those types of support structures that have legs 36 which attach directly to the sea floor 38.

[0041] As shown in FIG. 1, part of the jacket 34 may extend a little bit above the waterline 40 which connects to the connecting structure 42 of the topside 32. A barge 44 or other water borne vessel may have a supporting frame 46 attached to the deck 47 of the barge 44. The terms "barge" and "vessel" will be used interchangeably herein. The barge 44 may be a heavy lifting barge with at least 10,000 DWT with ballast systems. The ballast system will permit the barge 44 to be raised or lowered with respect to the waterline 40 or by ballasting the barge 44 up or down. The deck weight may be at least 4,000 mt. The supporting frame 46 supports the topside 32 while the topside is attached to the barge 44. The topside 32 will be attached and supported by the supporting frame 46 in a sea fasten manner in order to allow the barge 44 to transport the topside 32 to in-shore or offshore sites where the jacket 34 is located.

[0042] The supporting frame 46 may be topped with a skid beam 48. The skid beam 48 may be an elongated structure or assembly rather than a single beam that extends out beyond the barge 44. A skid shoe 50 is mounted to the top of the skid beam 48. The topside 32 is attached to the skid shoe 50. The skid shoe 50 is configured to skid along the skid beam 48 thus enabling the topside 32 to move along the skid beam 48. A cable winch and pulley system 51 may be attached to the barge 44 and the topside 32 and may be configured to move the topside 32 on the skid shoe 50 along the skid beam 48 in a desired manner. Other systems may also be used to move the topside 32 along the skid beam 48.

[0043] Once the barge 44 is positioned and is at a desired location with the respect to the jacket 34, the topside 32 may be moved via the cable winch and pulley system 51 along the skid beam 48 extending over the jacket 34. The barge or vessel 44 may be ballasted to move up or down in the water 54 in order to provide a desired vertical location of the topside 32. When the top side 32 is positioned over the jacket 34, the vessel 44 is high in the water to allow the topside 32 to be moved in position. The vessel 44 may then be ballasted to ride lower in the water 54 so that the topside 32 touches the jacket legs 36 enabling the topside 32 to be attached to the legs 36 according to well-known techniques similar to those used in float-over techniques.

[0044] In some embodiments, the technique of using mating cones and cups will be employed to assist in the connecting of the connecting structure 42 of the topside 32 and the legs 36 of the jacket 34.

[0045] Once the topside 32 is attached to the jacket 34 the finished structure 52 is formed as seen for example in FIG. 5.

[0046] In some embodiments in accordance with the invention and as shown in FIG. 1, if a topside 32 is particularly heavy, a second barge 56 may be used. The second barge 56 is shown in dashed lines to indicate that it is optional. The second barge 56 may include a support column 58 to support the cantilevered end of the skid beam 48. In other embodiments of the invention, as shown in FIGS. 2-5, only a single barge 44 or vessel is used.

[0047] As shown in FIG. 2, the vessel 44 is loaded with a supporting frame 46 and between the supported frame 46 and the topside 32 is the skid shoe 50. The skid beam 48 extends past the barge 44 and is therefore capable of extending over the jacket 34 as shown in FIG. 1. The topside 32, the skid beam 48 and the supporting frame 46 are sea fastened to the barge 44 so they will not shift as the barge 44 moves over the water 54. The vessel 44 may be ballasted so that waterline 40 is at its desired location with respect to the vessel 44.

[0048] As shown in FIG. 3, the vessel 44 moves to a desired position with respect to the jacket 34. In most instances, this desired location will be where the skid beam 48 extends over the legs 36 of the jacket 34. The jacket 34, as shown in FIG. 3, may be attached to the sea floor 38. In other embodiments of the invention, mating legs similar to the legs 36 may be attached to a submerged floating structure as known in the art.

[0049] At this point, the barge or vessel 44 may be ballasted to ride high in the water 54. The skid shoe 50 and topside 32 are located over the supporting frame 46. The topside 32 may be moved along the skid beam 48 by use of a cable winch and pulley system 51 (see FIG. 1) or other suitable system. The topside 32 is mounted on the skid shoe 50 which enables movement of the topside 32 along the skid beam 48. The connecting structure 42 is aligned with the legs 36 on the jacket 34. At this point, the supporting frame 46 may still be supporting the weight of the topside 34 and the vessel 44 may be ballasted to place the connecting structure 42 in contact with the legs 36 and the jacket 34.

[0050] Once the topside 32 is connected to the legs 36 of the jacket 34, the skid shoes 50 are detached with the topside 32 through mechanical action or ballasting the vessel 44 and the vessel 44 along with the supporting frame 46, the skid beam 48, and the skid shoe 50 may move away from the resultant finished structure 52 as shown in FIG. 5. The finished structure 52 may be comprised of the topside 32 and the connecting structure 42 connecting the topside 32 to the legs 36 of the jacket 34.

[0051] FIGS. 6-7 illustrate a perspective view and a partial view of the topside 32 located on the skid shoe 50 on the skid beam 48 being supported by the supporting frame 46. The vessel 44 is shown with respect to the waterline 40 as supported by the water 54. FIG. 6 illustrates the jacket 34 being supported by the sea floor 38. FIG. 8 shows an end view of the skid beam system 30. The barge or vessel 44 is shown with respect to the waterline 40. Upon the barge or vessel 44 is the supporting frame 46 supporting to the topside 32. The connecting structure 42 is also illustrated.

[0052] FIGS. 9-14 and 18-19 illustrate a sponson system 60 in accordance with another embodiment of the invention. In the sponson system 60, as shown in FIG. 9, the topside 32 is

supported by sponsons 62 attached to the vessel 44. The sponsons 62 may be attached to the interior frame of the vessel 44 as well as the vessel 44 hull. The sponsons 62 are attached in a manner to allow the sponsons 62 to support the weight of a topside 32. The vessel 44 and sponson 62 are shown with respect to the waterline 40 and are floating in the water 54. The topside 32 is positioned over the jacket 34 supported by the sea floor 38.

[0053] FIG. 10 is an end view similar to that shown in FIG. 9. In FIG. 10, the sponsons 62 are shown supporting the topside 32 with a supporting frame 46. In some embodiments, the distance between the sponsons 62 may be adjusted. Preferably, the width of the hull stern should be large enough to permit the jacket to fit in the open space between the two sponsons 62 attached to the two side shells of the vessel 44.

[0054] The supporting frame 46 is attached to and rests upon the sponsons 62. The topside 32 has been positioned over the jacket 34. In some embodiments, the longitudinal dimension of the jacket 34 is near 40 meters near the water surface elevation. Each sponson 62 can be 80 meters long with 40 meters extending from the hull stern of the vessel 44.

[0055] FIG. 11 is a side view of the sponson system 60 showing the vessel 44 with sponson 62 which support the topside 32 approaching the topside 34. The legs 36 of the jacket 34 are also shown. The topside 32 is supported by a supporting frame 46 and a connecting structure 42 is shown the connection structure 42 well attached to the legs 36.

[0056] FIG. 12 illustrates the vessel 44 aligned with jacket 34 so the connecting structure 42 of the topside 32 is aligned with the legs 36 of the jacket 34. The vessel 44 has been ballasted so that the topside 32 is above and therefore clears the legs 36 of the jacket 34. The topside 32 is supported by the sponsons 62 attached to the vessel 44.

[0057] FIG. 13 illustrates a topside 32 that has been lowered so that the connecting structure 42 contacts that legs 36 of the jacket 34. The topside 32 may be lowered by ballasting the barge 44 down or by lowering the topside 32 with a lowering system that may include jacks. In some embodiments of the invention both jacks and a barge 44 capable of ballasting up or down may be used. The connecting structure 42 connects to the legs 36 of the jacket 34. In embodiments where the topside 32 is lowered solely by ballasting the vessel 44 there is no relative movement between the topside 32 and the vessel 44 before and during the mating process of attaching the topside 32 to the jacket 34.

[0058] FIG. 14 shows the vessel 44 moving away from the finished structure 52. Finished structure 52 is comprised of the topside 32, the connection structure and the jacket 34. The vessel 44 has been de-ballasted so that it sits higher in the water 54 than that shown in FIG. 13. The sponsons 62 support the supporting frame 46. The topside 32 is supported by the jacket 34. The construction of the finished structure 52 is now being completed using the sponson system 60.

[0059] FIG. 15 is a perspective view of an example supporting frame 46 that may be used in a skid beam type system 30 and shown in FIGS. 1-8. The supporting frame 46 may include a top 74 and bottom 76. The bottom 76 may attach to the vessel 44 while the top 74 attaches to the skid shoes 50 which support the topside 32 (the vessel 44, skid shoes 50 and the topside 32 are not shown in FIG. 15). The supporting frame 46 may be built of small units so that more or less units may be used to adjust the height of the topside 32 to a desired height. The desired height may be related to a desired gap

between the connecting structure 42 and the legs 36 of the jacket 34 during a mating operation.

[0060] FIG. 16 shows a side view of a skid shoe 50 that may be used in accordance with the invention. Skid shoe 50 may include a contacting frame 66 and reduced friction element 68 which are in context with the skid beam 48 to facilitate movement of the skid shoe 50 across the skid beam 48.

[0061] FIG. 17 is an example perspective view of a skid beam 48 that may be used in accordance with an invention. The skid beam 48 may include a supported portion 70 and cantilever portion 72. The portion of the cantilever portion 72 that hangs over the side of the vessel 44 may be about 20 meters long. Cantilevered portions 72 of other lengths may also be used. The supported portion 70 may be attached to the supporting frame 46 shown for example in FIG. 15.

[0062] FIGS. 18-19 are perspective views of a sponson system 60. FIG. 19 is an enlarged partial view similar to that shown in FIG. 18. As shown in FIGS. 18-19, the vessel 44 is equipped with sponsons 62 supporting a topside 32. The sponsons 62 have support frames 46 supporting the topside 32. Optionally, multiple supporting frames 46 may be used. Support frames 46 that are large and configured to support the topside 32 may be mounted to each sponson 62.

[0063] The sponsons 62 may provide buoyancy to make the deck weight load better distributed on the barge hull. If more buoyancy is desired, the sponsons 62 may also include buoyancy boxes 64 which increase the buoyancy and therefore lifting capability of the sponsons 62. Buoyancy boxes 64 may be desirable particularly in instances where the topside 32 is particularly heavy.

[0064] One of ordinary skill in art may, after review of this disclosure, select an appropriate amount or size of buoyancy boxes 64 to attach to the sponson 62 as needed in individual applications.

[0065] As shown in FIG. 18, the topside 32 is approaching the jacket 34. The legs 36 of the jacket 34 extend upwardly and are exposed to receive the connecting structure 42. As shown in FIG. 19, the vessel 44 has moved in position so that the sponsons 62 are on either side of the jacket 34 and the connecting structure 42 is located just above the legs 36 of the jacket 34. Once the connecting structure 42 is aligned with the legs 36, the topside 32 can be lowered by either ballasting the vessel 44 down or lowering the topside 32 if the supporting frame 46 incorporates jacks or other structure which allows the topside 32 to be lowered. In instances where the supporting frame 46 is of a fixed height then the topside 32 may be lowered by ballasting the vessel 44 down.

[0066] FIG. 20 illustrates the steps that may be used in a method for attaching a topside to a jacket using the skid beam method. In step S30, operators will assemble supporting frames, skid beams and skid shoes and load them on the vessel. At step S32, the operators load the topside on the skid beam at a location on the skid beam for transportation and sea fasten the topside to the vessel. At step S34 the operators move the vessel to a desired position. At step S36 the operators align the vessel with an installed jacket. As mentioned above, the jacket may be a supporting structure for the topside that attaches the sea floor or in other embodiments, of the invention, it may be a floating structure. At step S38, operators align the vessel to desired vertical position or, in other embodiments, may laterally move the topside up or down to a desired position. At step S40 operator slides topside across the skid beam into position over the jacket. At step S42 operators connect topside to the jacket. At step S44 the opera-

tors disconnect the topside from the skid beam and vessel. At step S46 the operators move the vessel away. One of ordinary skill in the art after reviewing this disclosure will note that the steps set forth in FIG. 20 need not necessarily be conducted in the order indicated.

[0067] FIG. 21 illustrates steps an operator may do to remove a topside from a jacket using a skid beam type method. As shown in FIG. 21 at step S48, the operator assembles support beams, skid beams and skid shoes onto a vessel. At step S50 operators move vessel into position near the topside in jacket and ballast the vessel to a desired vertical position. At step S52, the operator attaches the topside to the skid shoe(s). At step S54, the operator cuts the jacket legs to release the topside from the jacket. At step S56 the operator skids the topside across the skid beam to a position for transport. At S58 the operator sea fastens the topside to the vessel. At step S60 the operators move vessel away from the jacket.

[0068] FIG. 22 illustrates a method of attaching a topside to a jacket using a sponson method. At step S62, the operators attach sponsons to the vessel. At step S64 the operators assemble supporting frames and load them on the vessel. At step S66, operators load topside onto the sponson or vessel deck upon the supporting frames and sea fasten the topside to the vessel. At step S68, the operators move vessel to position and align vessel with the installed jacket. At step S70, the operators ballast the vessel to achieve a desired vertical position of the topside. In other embodiments of the invention, the topside may be moved vertically and at S72 operators move the topside to sponsons if the topside was located on the deck. At step S74, the operators ballast the vessel to a desired vertical position so the topside is over the jacket. At step S76, operators connect the topside to the jacket. At step S78, the operators move the vessel away.

[0069] FIG. 23 illustrates a method of removing a topside from a jacket using a sponson method in accordance with an embodiment of the invention. At step S80, the operators assemble supporting structures on the sponson and/or deck of the vessel. At step S82, the operators move the vessel in position near the topside. At step S84, the operators ballast the vessel to a desired vertical position. At step S86, the operators attach topside to supporting structures on the vessel and cut the jacket legs to release the topside from the jacket. At step S88, the operators move the topside from the jacket and sea fasten the topside to the vessel. At step S90, the operators move the vessel away from the jacket.

[0070] The many features and advantages of the invention are apparent from the detailed specification, and thus, it is intended by the appended claims to cover all such features and advantages of the invention which fall within the true spirit and scope of the invention. Further, since numerous modifications and variations will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation illustrated and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

1. An apparatus for loading a topside onto a jacket comprising:

a projecting structure extending beyond a deck of a marine vessel wherein the projecting structure is configured to support the topside in a cantilevered manner and the projecting structure is dimensioned sufficiently long enough to allow the marine vessel to approach a sub-

merged jacket and position the topside above the submerged jacket without having the marine vessel contact the jacket; and

a support configured to support the topside above the projecting structure.

2. The apparatus of claim 1, wherein the projecting structure includes a support beam located above the deck of the marine vessel.

3. The apparatus of claim 2, wherein the support includes a skid shoe located on the support beam wherein the skid shoe is configured to skid across the support beam while supporting the topside thereby allowing the topside to move along the support beam.

4. The apparatus of claim 3, further comprising a winch system located on the marine vessel configured to move the topside along the support beam.

5. The apparatus of claim 2, further comprising a second marine vessel and a support column attached to the second marine vessel and the support beam whereby allowing the topside on the support beam to be supported by both marine vessels.

6. An apparatus for loading a topside onto a jacket comprising:

a projecting structure extending beyond a deck of a marine vessel wherein the projecting structure is configured to support the topside and the projecting structure is dimensioned sufficiently long enough to allow the marine vessel to approach a submerged jacket and position the topside above the submerged jacket without having the marine vessel contact the jacket; and

a support configured to support the topside above the projecting structure wherein the projecting structure includes a sponson attached to the marine vessel and providing buoyancy to the marine vessel.

7. The apparatus of claim 6, wherein the support includes a jack attached to the sponson and configured to be actuated to move the topside vertically with respect to the sponson.

8. The apparatus of claim 6, wherein the sponson is a first sponson and further comprising a second sponson attached to the marine vessel and oriented alongside the first sponson and the topside is supported by both sponsons.

9. The apparatus of claim 6, further comprising a buoyancy box attached to the sponson and configured to provide additional buoyancy to the sponson.

10. A method for one of installing and removing a topside from a jacket comprising:

locating a cantilevered support beam proximate to the jacket;

moving the topside along the support beam; and

one of attaching and detaching the topside and the jacket.

11. The method of claim 10, further including using a skid shoe to move the topside along the support beam.

12. The method of claim 11, further including loading a support assembly on a marine vessel, loading the topside onto the support assembly and fastening the topside and support assembly to the marine vessel.

13. The method of claim 11, further comprising ballasting a marine vessel supporting the support beam and adjusting the ballasting of the marine vessel as the topside is one of loaded and unloaded from the marine vessel.

14. The method of claim 11, further comprising supporting the support beam with a second marine vessel.

15. A method for one of installing and removing a topside from a jacket comprising:

positioning sponsons attached to a marine vessel around a jacket;

supporting at least part of the weight of the topside on the sponsons; and

one of attaching and detaching the topside and jacket.

16. The method of claim 15, further comprising aligning the topside with the jacket and lowering the jacket to attach the jacket to the topside,

17. The method of claim 15, further comprising ballasting the marine vessel supporting the support beam and adjusting the ballasting of the marine vessel as the topside is one of on loaded and off loaded from the marine vessel.

18. The method of claim 15, further comprising raising the topside with respect to the sponsons.

19. The method of claim 15, further comprising providing buoyancy to the sponsons with a buoyancy box.

20. The method of claim 15, further comprising one of either attaching and reattaching the sponsons to the topside.

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