In summary, described herein is a loading platform assembly for moving a load between a first sea vessel and a second sea vessel. The loading platform assembly comprises a first platform fixable to a first vessel and a ramp connected relative to the first platform. The ramp is able to contact a second vessel so that a load can be lowered from the first vessel to the first platform and then moved onto and over the ramp to the second vessel.
A LOADING PLATFORM ASSEMBLY

Field of the Invention

The invention relates to an assembly and a method for moving a load from a first vessel to a second vessel.

Background of the Invention

The transfer of goods such as vehicles, equipment and supplies, between two ships at sea can become difficult in certain sea conditions. When the sea conditions are at Sea State 2 (i.e. a wave height of 0.1m to 0.5m) or higher vessels normally stand off from each other and use either a boom or cable device to transfer the supplies. However, once the sea conditions exceed Sea State 2 the exercise becomes increasingly more difficult as the movement of the load suspended from the boom can be vastly different and out of synchronisation to the movement of the ship receiving the goods. This can be exacerbated when transferring goods from a large ship onto smaller vessels.

The movement of a load suspended from the crane of a large vessel is dependent on the wind and tidal forces against the hull of the large vessel, which will be quite different to the same forces acting on a smaller vessel. As a result, when a suspended load is lowered and nears the deck of the smaller vessel the load will be moving differently to the motion of the deck of the smaller vessel. In these situations there exists the potential for the suspended load to cause significant damage to the deck of the smaller vessel. In addition, in these situations there is a greater risk of injury to personnel attempting to locate and unload the suspended load.

It is therefore desirable to provide a device and/or method that reduces the risk of transferring supplies between two vessels.

Summary of the Invention

The invention provides a loading platform assembly for moving a load between a first sea vessel and a second sea vessel, the loading platform assembly comprising:
a first platform fixable to a first vessel; a ramp connected relative to the first platform, wherein the ramp is able to contact a second vessel so that a load can be lowered from the first vessel to the first platform assembly and then moved onto and over the ramp to the second vessel.

By providing a first platform that can be fixed to a first sea vessel, and a ramp connected relative to the first platform that is able to contact a second vessel, it is possible to bridge a gap between the two vessels and allow a load to be transferred from the first vessel to the second vessel by lowering the load from the first vessel to the first platform and moving onto and over the ramp to the second vessel.

In some embodiments the ramp accommodates differences in movement between the first platform and the second vessel.

In some embodiments the ramp is flexibly connected relative to the first platform. In a preferred embodiment the ramp is pivotably connected relative to the first platform. By providing a ramp that is flexibly connected relative to the first platform the ramp is able to accommodate differences in movement between the first vessel and the second vessel.

In some embodiments the ramp is formed from sections that can move independently relative to one another. Movement of the sections may be restricted to substantially vertical movement.

By providing a ramp that is formed from sections that can move independently relative to one another it is possible to accommodate both pitching and rolling movements. In addition, by restricting the movement of the sections to be substantially vertical it is possible to maintain the space between the sections.

The loading platform assembly may further comprises a second platform located between the first platform and the ramp. The second platform is preferably buoyant. By providing a buoyant second platform located between the first platform and the ramp it is possible to substantially couple the movement of the second platform with the movement of the water.
In some embodiments the second platform is connected to the first platform by a hinged connection to allow the second platform to be folded onto the first platform. This provides a hinged connection between the first platform and the second platform to allow the second platform to be folded onto the first platform so the size of the loading platform assembly can be significantly reduced when stored compared to the size of the loading platform assembly when in use. In addition, by providing a hinged connection between the first platform and a buoyant second platform the second platform can accommodate for the majority of the difference in pitching motion between the first vessel and the second vessel.

In some embodiments the ramp is removably connected relative to the first platform. By having a ramp that is removably connected to the first platform the size of the loading platform assembly can be further reduced when stored.

The invention also provides a method of moving a load from a first sea vessel to a second sea vessel, the method including: fixing a first platform to a side wall of the first vessel; deploying a ramp to bridge between the first platform and the second vessel; lowering a load from the first vessel to the first platform and moving the load onto and across the ramp to the second vessel.

By fixing a first platform to a side wall of the vessel there is a platform the moves consistently with the movement of the first vessel, which allows a load to be lowered onto the first platform in high Sea States, for example up to Sea State 5. The load can then be moved onto and across the ramp to the second vessel.

In some embodiments the method includes accommodating the differences in movement between the first platform and the second vessel.

In some embodiments the method includes flexibly connecting a proximal end of the ramp relative to the first platform. In a preferred embodiment the method includes resting a distal end of the ramp on the second vessel.

In some embodiments the method includes accommodating rolling movements between the first platform and second vessel by allowing sections of the ramp to move relatively independently of one another.
In some embodiments the method includes fixing the first platform to the first vessel above sea level. This assists to avoid forces generated by waves impacting the first platform, and potentially dislodging the first platform.

In some embodiments the method includes attaching a second platform to the first platform, and inflating an inflatable module of the second platform before deploying the ramp. In a preferred embodiment the method includes unfolding the second platform from a folded position to an unfolded position before the ramp is deployed.

In some embodiments the method includes driving or rolling the load from the first platform across the ramp to the second vessel.

An advantage of some embodiments of the invention is that they may accommodate pitching and rolling and pitching movements so that the transfer of a load from a first sea vessel to a second sea vessel can be performed more easily. Some embodiments may provide the ability to unload equipment, supplies and vehicles from large transport type ships offshore onto smaller vessels that are able to unload at the shoreline, without berths, jetties or constructed facilities.

A further advantage of some embodiments of the invention is that they may provide the ability to extend loading operations through Sea State 4 plus.

**Brief Description of the Drawings**

An embodiment, incorporating all aspects of the invention, will now be described by way of example only with reference to the accompanying drawings in which;

Figure 1 is an isometric view of a loading platform assembly;

Figure 2 is an isometric view of the loading platform assembly in Figure 1 in a retracted and deflated state in a storage position on a ship;

Figure 3 is an isometric view of the loading platform assembly in Figure 2 being lowered over the side of the ship;
Figure 4 is an isometric view of the loading platform assembly in Figure 3 attached to the side of the ship;

Figure 5 is an isometric view of the loading platform assembly in Figure 4 being unfolded;

Figure 6 is an isometric view of the loading platform assembly in Figure 5 in the unfolded position;

Figure 7 is an isometric view of the loading platform assembly in Figure 6 with a ramp of the loading platform assembly positioned to contact a smaller vessel and an armoured vehicle being lowered onto the loading platform;

Figures 8 is an isometric view of the loading platform assembly in Figure 7 showing an armoured vehicle moving from the loading platform to the smaller vessel;

Figure 9 is an isometric view of a vacuum pad illustrating a perimeter seal and an outer lip to seal uneven attachment surfaces;

Figure 10 is a perspective view of a hollow frame of the vacuum pad of Figure 9;

Figure 11 is an end view of the vacuum pad of Figure 9, located immediately adjacent a section of the side of a ship; and

Figure 12 is an end view of the vacuum pad of Figure 9 and the side of a ship attached together, further illustrating a location of heating elements within the perimeter of the vacuum pad.

**Detailed Description of an Embodiment of the Invention**

Figures 1 to 8 show a loading platform assembly 10 for moving a load between a first vessel 14 and a second vessel, where the second vessel is shown as landing craft 16. The loading platform assembly 10 comprises a first platform 20 that is fixable to a side wall 15 of the first vessel 14. The loading platform assembly 16 also
comprises a ramp 30 connected relative to the first platform 20 either directly or indirectly, as illustrated, through a second platform 40.

The load is adapted to be lowered from the first vessel 14, which is usually larger and higher than the second vessel, onto the first platform 20, generally by crane. The ramp 30 contacts the landing craft 16 so that the load can be moved from the first platform 20 over the ramp 30 to the landing craft 16. The loading platform assembly 10 effectively bridges a gap between the first vessel 14 and the landing craft 16.

The ramp 30 is designed to reduce the differences in movement between the first and second vessels, and specifically between the first platform and the second vessel. The ramp effectively acts as a transition zone by accommodating the differences in movement between the first platform and second vessel while still maintaining reliable contact therebetween.

The ramp 30 is able to reduce, or in some ways dampen, movement between the first platform and second vessel by being flexibly connected at a proximal end 34 relative to the first platform 20. In particular the ramp is pivotally or hingedly connected to the platform 20. The pivotal connection allows the ramp 30 to move relative to the first platform 20 in order to accommodate differences in the pitching of the first vessel 14 and the landing craft 16. The other end of the ramp 30, shown as distal end 36, rests on the landing craft, or is at most also flexibly connected to the landing craft. The relationship between the ramp and landing craft is discussed in more detail below.

As shown in Figures 1 to 8, the loading platform assembly 10 may have a second platform 40 located between the first platform 20 and the ramp 30. The second platform 40 is flexibly connected to the first platform 20. Specifically, the second platform 40 is pivotally or foldably connected to the first platform 20 so that the second platform can fold onto the first platform.

The second platform 40 may act as the connection between the ramp 30 and the first platform 20. That is, the ramp 30 is flexibly or movably connected relative to the first platform 20 through the second platform 40. As shown in Figure 1, the second platform 40 is foldably connected to the first platform 20 and the ramp 30 is pivotally connected to the second platform 40. This configuration forms an articulated linkage in
the loading platform assembly. The ramp 30 is connected to the second platform 40 in such a way that allows the ramp to be removed when not in use.

As the first platform is fixed to the side wall 15 of the first vessel 14 the first platform moves with the first vessel. The second platform 40 and the ramp 30 buffer or accommodate the movement between the first platform 20 and the landing craft 16 allowing a safer and easier passage of loads from the first platform to the second, smaller vessel.

The second platform 40 has four inflatable modules 42 that, when in use, contact the water to float the second platform 40. In other words, the second platform is buoyant. The inflatable modules 42 are connected to a frame 42a that is pivotally attached to the underside of the second platform 40. Having a pivoting frame 42a allows variation in the angle of the second platform 40 to the water level depending on the height of the landing craft 16, and the weight variations of the load moving across the second platform 40. A drive mechanism (not shown) may be positioned between the second platform 40 and the pivoting frame 42a to control and adjust the height of the second platform for alignment with the landing craft 16. The inflatable modules 42 sit below the surface of the water to increase the stability of the second platform. The inflatable modules 42 are designed to be substantially submerged to minimise movement of the second platform due to the waves. The modules 42 are also designed to provide sufficient buoyant force so that when a heavy load, such as an armoured vehicle or tank 12, is moved across the second platform 40 (as shown in Figure 8) the inflatable modules 42 maintain the second platform 40 above the water level.

The modules 42 effectively couple the second platform 40 to the movement of the water, which more evenly matches, or synchronises, the movement of the smaller landing craft 16 to the first platform. In this embodiment, the hinged connection between the second platform 40 and the first platform 20 therefore accommodates the majority of the difference in pitching motion between the first vessel 14 and the landing craft 16, with the pivotal movement of the ramp 30 accounting for the smaller variations between the second platform 40 and the landing craft 16.

The invention can function without the second platform 40, and with only the
first platform 20 and ramp 30. In such a configuration the ramp 30 will account for all of
the variation between the first vessel 14 and the landing craft 16. While in this
embodiment neither the first platform 20 nor the ramp 30 will be in contact with the
water the flexible connection between the first platform 20 and the ramp 30 will
accommodate the difference between the first platform 20, which is fixed to the side 15
of the first vessel 14, and the landing craft 16.

It is understood that in another embodiment that similarly does not include the
second platform, the ramp itself may be provided with a buoyant structure in the form
of inflatable modules so that it can accommodate both rolling and pitching movements
between the first platform and landing craft.

The second platform 40 is connected to the first platform 20 such that the
second platform 40 is spaced apart from the hull of the first vessel 14. This is achieved
by the second platform 40 having a width that is less than the width of the first platform
20, or at least is offset to space the platform 40 from the vessel hull. By spacing the
second platform 40 from the hull of the first vessel 14 it is possible to avoid damage to
the hull of the first vessel 14 by the second platform 40 contacting and rubbing against
the hull of the first vessel 14 as the second platform 40 moves with the waves. In
addition, the inflatable modules 42 may act as fenders between the second platform 40
and the landing craft 16.

The ramp 30 comprises a plurality of sections, shown as elongate members 32,
which can move relative to and independently of each other. The elongate members
32 are free to move but are restricted to substantially vertical movement in order to
provide a constant spacing between the sections. The movement of the elongate
members 32, governed by gravity and the position of the landing craft 16,
accommodate the differences in roll between the first vessel 14 and the landing craft
16.

Specifically, when the landing craft 16 moves upwards relative to the first vessel
14, due to heavy wind and tidal forces, the deck 17 of the landing craft 16 will contact
the elongate members 32 and force them to pivot upwards. In contrast, when the
landing craft 16 moves downwards relative to the first vessel 14, the elongate
members 32 will pivot downwards under their own weight until they contact the deck 17
of the landing craft 16. Furthermore, when the rolling motion of the first vessel 14 and 
the landing craft 16 differ the ability of the elongate members 32 to move 
independently relative to one another allows some elongate members 32 to pivot 
upwards while other elongate members 32 pivot downwards or remain still. In this way 
the elongate members 32 automatically keep level with the deck by adjusting to the 
rolling movements of the landing craft 16.

When stowed on the larger first vessel, the loading platform assembly 10 is in a 
stored condition where the second platform 40 stacks on top of the first platform 20 by 
folding. The hinged connection 44 between the first platform 20 and the second 
platform 40 allows for the second platform 40 to be folded onto the first platform 20. To 
reduce the size of the stowed loading platform assembly the modules 42 are deflated. 
The ramp 30 may be detached from the second platform 40 and stored separately. By 
folding the second platform 40 onto the first platform 20, and deflating the inflatable 
modules 42 the area required to store the loading platform assembly 10 is significantly 
reduced compared to the area and volume of the loading platform assembly 10 when 
in use.

Referring to Figures 2 and 3, the loading platform assembly 10 is deployed 
using the first vessel's crane 50 to pick up from the stored location the first platform 20 
and the second platform 40, which are folded and latched together. The stored location 
will normally be inside the hull or on top of a hatch cover of the first vessel 14. The first 
platform 20 and the second platform 40 both have lifting lugs 23, 43 that assist 
manoeuvring the first platform 20 and the second platform 40.

As shown in Figure 4, the first platform 20 is positioned just above wave height 
and is connected to a side wall 15 of the hull of the first vessel 14 by vacuum pad 
attachment devices 22 and a sufficient number of steel cables 24, 24a, 25, 25a. The 
first platform 20 is connected to the first vessel 14 so that the first platform 20 is fixed 
to the first vessel 14 and follows the same movement as the first vessel 14. The 
vacuum pads act to reduce fore and aft movement of the first platform 20. The vacuum 
pads 22 are supplied from vacuum pumps within the platform (not shown).

The steel cables 24, 24a, 25, 25a act as ties to stabilise attachment to and 
movement with the first vessel. Cables 24a, 25a are attached at the inside edge 26 of
the first platform 20, and are connected to fastenings on the deck of the first vessel 14. Cable 25 is attached at the outside edge 27 of the first platform 10, and is connected to fastenings on the deck of the first vessel 14. Cable 24 is attached between the inside edge 26 and the outside edge 27 of the first platform 20 so that the cable 24 does not obstruct movement of the load from the first platform 20 to the second platform 40. The steel cables 24 can be attached to the lifting lugs 23 on the first platform 20. The steel cables 24 have quick release hooks. This provides a fast and simple method of attaching the first platform 20 to the hull of the first vessel 14. Once the first platform 20 is connected to the hull of the first vessel 14 a safety railing (not shown) can be erected for personnel safety.

Referring to Figures 5 and 6, the crane 50 of the first vessel 20 is used to lift and pivot the second platform 40 from the folded position on top of the first platform 20 over and into the water. The inflatable modules 42 are then inflated by a compressor (not shown) located inside the first platform 20.

Referring to Figure 7, once the floatation modules 42 are fully inflated the landing craft 16 can manoeuvre into position so the ramp 30 can be deployed by connecting it to the first platform 10 and lowered it onto the deck of the landing craft 16, so that the loading platform assembly 10 bridges the gap between the first vessel 14 and the landing craft 16. The compressor used to inflate the inflatable modules 42 can be used for placement of the ramp 30. Alternatively, the ramp 30 may be hinged to the second platform 40 and the crane 50 used to place the ramp 30.

Referring to Figures 7 and 8, the load, shown as tank 12, is lowered onto the first platform 20 by the crane 50. The tank 12 is then driven across the second platform 40 and the ramp 30 onto the landing craft 16. Alternatively, vehicles and other cargo can instead be moved across the second platform 40 and ramp 30 on a trolley or a sectional guide rail 46 to prevent accidental movement that may cause the load to be lost over the side of the loading platform assembly 10.

While the loading platform assembly 10 may have a permanent hinged connection between the first platform 20 and the second platform 40, it is envisaged that the second platform 40 could be detachable from the first platform 20. In such a configuration the second platform 40 could, instead of folding onto the first platform, be
lifted and placed onto the first platform 20. When using the loading platform assembly 10 a mechanical or pneumatic drive within the first platform 20, such as the compressor used to inflate the inflatable modules 42, could be used to extend the second platform 40 out into position by sliding the second platform 40 across the first platform 20. In yet another alternative, the second platform 40 may be housed within a cavity of the loading platform 20 when stored and then pulled and extended out into position.

While the vacuum pumps were described as being located in the first platform 20, it is envisaged that the vacuum pumps could alternatively be located on the first vessel 14, with vacuum lines connecting the vacuum pumps to the vacuum pads 22. In addition, while the compressor is described as being located in the first platform 20, it is envisaged that the compressor could alternatively be located under the first platform 20 or on the first vessel 14, with pneumatic lines connecting the compressor to the inflatable modules 42.

The first platform 20, second platform 40 and the ramp 30 can be made of any suitable material. For example, the platforms 20, 40 and the ramp 30 can be made with a steel frame and hollow steel structure. In addition, the deck areas could be made from aluminium grating to minimise the weight of the structures. The areas that will bear greater load under the weight of the vehicle moving to the landing craft 16 can be reinforced for further strength.

While the second platform 40 was described as having four inflatable modules 42, the number of modules required to float the second platform 40 could vary and will depend on the size and shape of the platform 40, and the size and shape of the inflatable modules 42. The size, spacing and shape of the inflatable modules 42 will be selected to minimise the movement of the second platform due to wave motion. The second platform may be made such that it is buoyant before the inflatable modules 42 are inflated; the inflatable modules 42 could contain sufficient air prior to full inflation to give the second platform some buoyancy.

The ramp 30 may be made from any suitable material. For example, the ramp 30 may be made from a rigid material, such as metal, or it may be made from a flexible material, such as rubber. If the ramp 30 is made from a flexible material the ramp 30
will be connected relative to both the first platform 20 and the landing craft 16. Furthermore, the ramp 30 may be housed in a storage cavity in the second platform 40 when stored.

With reference to Figures 9 to 12, the vacuum pad will now be described in detail. As shown in Figure 9, there is illustrated a vacuum pad 100. The vacuum pad 100 comprises backing plate 101, a perimeter seal 102 an outer, peripheral lip 103, a frame 105 and a spacer 104. The perimeter seal 102 and lip 103 facilitate the formation of a vacuum seal, when the vacuum pad 100 is placed against a relatively planar surface, such as the side wall 15 of the first vessel 14. As pressure is applied to the backing plate 101, air is trapped between the inner spacer 104 and the backing plate 101 by the perimeter seal 102. As further pressure is applied to the backing plate 101, the trapped air is forced out through the seal 102, and the lip 103 prevents further air from being drawn in through the seal 102. This action creates a suction or negative pressure between the vacuum pad 100 and the side wall 15 of the first vessel 14. The suction created temporarily engages the side wall 15 and the vacuum pad 100, holding the two in a fixed relationship with one another.

The perimeter seal 102 is constructed of a rubber compound either poured into a mould, or extruded to give flexible enough characteristics to seal the vacuum pad 100 to a side wall 15.

A vacuum pump (not shown) can be used in conjunction with the vacuum pad 100, to increase the negative pressure, or suction, thus increasing the strength of the connection between the vacuum pad 100 and the side wall 15.

Figure 10 illustrates the hollow perimeter frame 105 of the vacuum plate 101, in which the negative pressure can be increased by the use of a vacuum pump. The suction created by the vacuum pump pulls air through a cavity 105a in the hollow frame 105 of the perimeter which increases the vacuum force between the side wall 15 and the vacuum pad 100. The frame 105 can be made from rolled steel sections, tubes, or extruded metal to provide the necessary hollow sections for fluid communication therethrough.

In the centre of the pad 100 there is provided a spacer 104. The spacer 104 is
made from a resilient material like a rubber or an elastomer and enhances the friction between the pad 100 and the side wall 15. As the spacer 104 is made from a resilient material it also provides a compressible member between the first vessel's side wall 15 and the back plate 101 of the vacuum pad 100. If the vacuum generated between the pad 100 and the side wall 15 is too great the plate 101 or the side wall 15 can be deformed and brought into contact with each other. This could cause damage to the vacuum pad 100 and more importantly damage to the side wall 15. The spacer 104 can provide grip for the pad 100, but it also provides a further safety barrier to prevent hull damage.

The spacer 104 further comprises a plurality of through-apertures 104a, that allow air to be removed by the vacuum pump from the cavity between the pad 100 and the side wall 15. In this manner the placement of the spacer 104 on the plate 101 of the pad 100 does not impair function of the pad 100.

The spacer 104 is evenly spread across the plate 101 of the vacuum pad 100 and thus provides a uniform coverage and uniform protection to the side wall 15. A more localised spacer 104 can result in high point loads being applied to the side wall 15. This is not ideal and can lead to localised side wall 15 deformation or damage.

The shape and size of the indentations 104a allow for the even support of the side wall 15 and vacuum plate 101 without distortion. An alternative to the indentations 104a can be the use of a characteristic material that would be sufficiently porous to allow vacuum to be created within the outer seal 102 having sufficient strength to maintain its shape under pressure.

The spacer 104 provides increased grip between vacuum pad 100 and side wall 15 to counter horizontal forces experienced by the loading platform assembly 10.

The additional grip provided by the spacer 104 also provides a buffer between the pad 100 and the side wall 15 ensuring that no metal-to-metal connection is made that could scrape or otherwise damage the side wall 15 of the first vessel 14. Ideally, the pad 100 and the side wall 15 are planar surfaces and contact is avoided; however, both the pad 100 and the side wall 15 can be subject to surface variations, whether as designed or due to damage. While most vessels have a thick outer side wall 15, the
painted coating on the side wall 15 is more susceptible to scrapes and scratches. This can expose the underlying material of the side wall 15 to salt and water and wind, which alone or in combination will have an erosion effect on the underlying substrate of the side wall 15.

When the pad 100 is placed near to a structural support beam 160 of a side wall 15, as shown in Figures 11 and 12, the pad 100 will not create sufficient suction to deform the side wall 15. However, the further the pad 100 is positioned from a beam 160, the greater the risk of deforming a panel of the side wall 15. This risk increases with the roughness of the sea (the higher the Sea State) as the loading platform assembly 10 can experience greater forces due to the pitching and rolling movements of the first vessel 14. At specific locations the side wall 15 will have a secondary structural beam perpendicular to the first beam 60. Such locations are ideal for the attachment of a vacuum pad 100.

As the suction is increased, whether by pressure of the use of a vacuum pump, the pad 100 is pulled into tight engagement with the side wall 15, as illustrated in Figure 12. Within the hollow frame 105 of the perimeter of the pad 100, heating elements 127 can be located. These heating elements 127 are contemplated for use in colder regions, where the heating element 127 is fitted within the seal 102 or the vacuum cavity 105a within the vacuum pad framework to counter the effects of cold and ice which can affect the flexibility of the seal 102.

When the vacuum pad 100 is mounted to the side wall 15 of the first vessel 14, the pad 100 will move with the vessel. Located on the backing plate 101 of each vacuum pad 100, there is a vacuum pump. The vacuum pump provides the additional vacuum for increasing the retention capacity of each vacuum pad 100. The pump is preferably sealed to the vacuum pad 100 to provide efficient operation. As discussed above, the vacuum pump may be located with the first platform 20.

Vacuum pads 100 are also discussed in co-pending PCT application no. [filed date], entitled "Automated Mooring Device" and filed by the Applicant on 25 March 2015, the disclosure of which is incorporated herein by reference in its entirety.

In the claims which follow and in the preceding description of the invention,
except where the context requires otherwise due to express language or necessary implication, the word "comprise" or variations such as "comprises" or "comprising" is used in an inclusive sense, i.e. to specify the presence of the stated features but not to preclude the presence or addition of further features in various embodiments of the invention.
Claims:

1. A loading platform assembly for moving a load between a first sea vessel and a second sea vessel, the loading platform assembly comprising:
   - a first platform fixable to a first vessel;
   - a ramp connected relative to the first platform, wherein the ramp is able to contact a second vessel so that a load can be lowered from the first vessel to the first platform and then moved onto and over the ramp to the second vessel.

2. The loading platform assembly of claim 1, wherein the ramp accommodates differences in movement between the first platform and the second vessel.

3. The loading platform assembly of claim 1 or claim 2, wherein the ramp is flexibly connected relative to the first platform.

4. The loading platform of claim 3, wherein the ramp is pivotably connected relative to the first platform.

5. The loading platform assembly of any one of the preceding claims, wherein the ramp is formed from sections that can move independently relative to one another.

6. The loading platform assembly of claim 5, wherein movement of the sections is restricted to substantially vertical movement.

7. The loading platform assembly of any one of the preceding claims, further comprising a second platform located between the first platform and the ramp.

8. The loading platform assembly of claim 7, wherein the second platform is buoyant.

9. The loading platform assembly of claim 7 or claim 8, wherein the second platform is connected to the first platform by a hinged connection to allow the second platform to be folded onto the first platform.

10. The loading platform assembly of any one of the preceding claims, wherein the
ramp is removably connected relative to the first platform.

11. A method of moving a load from a first sea vessel to a second sea vessel, the method including:
   - fixing a first platform to a side wall of the first vessel;
   - deploying a ramp to bridge between the first platform and the second vessel;
   - lowering a load from the first vessel to the first platform and moving the load onto and across the ramp to the second vessel.

12. The method of claim 11, including accommodating the differences in movement between the first platform and the second vessel.

13. The method of claim 11 or claim 12, including flexibly connecting a proximal end of the ramp relative to the first platform.

14. The method of any one of claims 11 to 13, including resting a distal end of the ramp on the second vessel.

15. The method of any one of claims 11 to 14, including accommodating rolling movements between the first platform and second vessel by allowing sections of the ramp to move relatively independently of one another.

16. The method of any one of claims 11 to 15, including fixing the first platform to the first vessel above sea level.

17. The method of any one of claims 11 to 16, including attaching a second platform to the first platform, and inflating an inflatable module of the second platform before deploying the ramp.

18. The method of claim 17, including unfolding the second platform from a folded position to an unfolded position before the ramp is deployed.

19. The method of any one of claims 11 to 18, including driving or rolling the load from the first platform across the ramp to the second vessel.
**INTERNATIONAL SEARCH REPORT**

**International application No.**
PCT/AU2015/000179

**A. CLASSIFICATION OF SUBJECT MATTER**

*B65G 67/62 (2006.01) B63B 27/30 (2006.01) B63B 27/14 (2006.01)*

According to International Patent Classification (IPC) or to both national classification and IPC.

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database consulted during the international search (name of database and, where practicable, search terms used)

WPIAP, EPDOC; IPC, CPC: B63B27/30/LOW, B65G67/60/LOW, B63B27/14/LOW, B65G69/22/LOW, B65G69/28/LOW and Keywords: platform, second, fixable, buoyant, ramp, pivot, fold and like terms.

Google Patent Search: Keywords: loading, platform, moving, load, vessel, first, second, fixable, platform, hinged, ramp, sections, removable, pivot, fold, buoyant and like terms.

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
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<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
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Documents are listed in the continuation of Box C

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**Date of the actual completion of the international search**

21 April 2015

**Date of mailing of the international search report**

21 April 2015

**Name and mailing address of the ISA/AU**

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<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
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This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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End of Annex

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