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A SUPPORT MEANS FOR AN ACCOMMODATION LADDER

FIELD OF INVENTION

This invention relates to a support means for an accommodation ladder of a kind engaged to a vessel which in an in use condition has a rigid elongate stair case section thereof suspended adjacent the hull of the vessel.

BACKGROUND

Accommodation ladders (also often referred to as gangways) provide for walk-on access to a ship. An accommodation ladder is for example shown in Figure 1, 2 and 3. The ladder is normally engaged to a ship to present an elongated staircase section in an appropriate position to allow for the embarking and disembarking of personnel to and from the ship. Sometimes the accommodation ladder is suspended adjacent to the ship whilst at sea as for example shown in Figure 2. This will allow for a smaller boat such as a pilot boat to position itself alongside the vessel and adjacent to the accommodation ladder to allow for a person to embark or disembark the ship. The accommodation ladder is suspended from the ship normally using a davit and whereby the accommodation ladder is positioned adjacent a portion of the ship to receive some lateral support from the ship. Such support requires for example the positioning of the staircase section against the side of the hull at an area where the hull is flat.

The accommodation ladder can also be used to allow personnel to embark and disembark a ship adjacent a wharf. As for example shown in Figure 3, the staircase section of the accommodation ladder can be placed onto a wharf surface and be supported in part thereby.

In the mode of use as seen with reference to Figure 2, the accommodation ladder sits substantially flush against the side of the hull. An accommodation ladder of this kind is hence limited to being positioned at a region of the hull where such natural lateral support can be provided by the hull to the accommodation ladder. This limits the placement of the accommodation ladder. Indeed for some vessels the hull shape does not have any significant flat sections and placement of the ladder is severely limited if it is to receive any significant support from the vessel. Otherwise, a different kind of accommodation ladder may need to be used.

Accordingly it is the object of the present invention to provide a means for providing support to an accommodation ladder which will provide greater freedom in the positioning of the

of the accommodation ladder on a ship or which will at least provide the public with a useful choice.

BRIEF DESCRIPTION OF THE INVENTION

Accordingly the present invention consists in a support means for an accommodation ladder of a kind engaged to a vessel which in an in use condition has a rigid elongate stair case section thereof suspended adjacent the hull of said vessel, said rigid elongate stair case section including a first distal end which in use is fixed to said vessel and a second distal end movable in at least a vertical direction to the first distal end wherein said support means comprises an arm including a first end to be engaged to said stair case section at a region thereof which is away from said first distal end and wherein said arm extends laterally from said rigid elongate stair case section to position a second end of said arm, when said accommodation ladder is in said in use condition, against the surface of said hull.

Preferably said arm is a telescopic arm whereby the distance between said first end and said second end can be varied.

Preferably said arm is articulatable.

Preferably said arm includes a securing region at which said arm is able to engage to the stair case section in a rigid manner.

Preferably said arm includes at its second end, an impact absorption means.

Preferably said impact absorption means is a rubber end piece engages to the second end of the arm.

Preferably said rubber end piece is of a larger surface area than the cross sectional area (transverse to its longitudinal direction) of the arm at its second end.

Preferably said arm is made up of at least two sections which are telescopically slidable relative to each other.

Preferably said at least two sections are able to be locked from sliding by a means to lock.

Preferably at least two sections include a hole each, the holes able to be moved to an overlying relationship, said means to lock being a pin insertable into the hole of each of said at least two sections when such holes are in an overlapping relationship.

Preferably said arm includes at at least its second end, an engagement region with which a means to move said arm can engage.

Preferably said engagement region is an upstand from the distal most of said at least two sections.

Preferably said upstand is provided in a manner such that a boat hook can engage therewith.

Preferably the end away from said first end of said arm, of each said at least two sections includes a said engagement region.

Preferably said arm is able to position the second end, from said first end at multiple distances.

In a second aspect the present invention consists in an accommodation ladder of a kind engaged to a vessel which in an in use condition has a rigid elongate stair case section thereof suspended adjacent the hull of said vessel, said rigid elongate stair case section including a first distal end secured to said vessel and a second distal end movable in at least a vertical direction to the first distal end, said accommodation ladder including a support means comprises an arm including a first end to be engaged to said stair case section at a region thereof which is away from said first distal end, said arm is able to extend laterally from said rigid elongate stair case section to position a second end of said arm, when said accommodation ladder is in said in use condition, against the surface of said hull.

Preferably said arm is articulatable relative to said stair case section.

Preferably said arm is non articulatable relative to said stair case section.

Preferably said arm is a telescopic arm such that the distance between said first end and said second end can be varied.

Preferably said arm extends substantially horizontally from said stair case section at least when in an in use condition.

Preferably said arm includes an engagement region is able to engage said arm to the stair case section in a rigid manner.

Preferably said arm includes at its second end, an impact absorption means.

Preferably said impact absorption means is a rubber end piece engages to the second end of the arm.

Preferably said rubber end piece is of a larger surface area than the cross sectional area (transverse to its longitudinal direction) of the arm at its second end.

Preferably said arm is made up of at least two sections which are telescopically slidable relative to each other.

Preferably said at least two sections are able to be locked from sliding by a means to lock.

Preferably at least two sections include a hole each, the holes able to be moved to an overlying relationship, said means to lock being a pin insertable into the hole of each of said at least two sections when such holes are in an overlapping relationship.

Preferably said arm includes at at least its second end, an engagement region with which a means to move said arm can engage.

Preferably said engagement region is an upstand from the distal most of said at least two sections.

Preferably said upstand is provided in a manner such that a boat hook can engage therewith.

Preferably the end away from said first end of said arm, of each said at least two sections includes a said engagement region.

Preferably said arm is able to position the second end , from said first end at multiple distances.

In a further aspect the present invention consists in a method of supporting an accommodation ladder of a kind engaged to a vessel so that in an in use condition a rigid elongate stair case section thereof is suspended adjacent the hull of said vessel, said rigid elongate stair case section including a first distal end secured to said vessel and a second distal end movable in at least a vertical direction to the first distal end and wherein the distance to the hull from the second distal end is greater than the distance from the hull to the first distal end said method including providing the accommodation ladder with an arm which includes a first end engaged to said stair case section at a region thereof which is away from said first distal end, said arm extending laterally from said rigid elongate stair case section to position a second end of said arm against the surface of said hull.

Preferably the staircase section is suspended by a rope or cable which extends between the vessel and the stair case section to in use impart a component of force on the staircase section which is towards the hull of the vessel.

This invention may also be said broadly to consist in the parts, elements and features referred to or indicated in the specification of the application, individually or collectively, and any or all combinations of any two or more of said parts, elements or features, and where specific integers are mentioned herein which have known equivalents in the art to which this invention relates, such known equivalents are deemed to be incorporated herein as if individually set forth. A preferred form of the present invention will now be explained with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of a prior accommodation ladder in a direction viewed from the vessel (but wherein the vessel has not been shown) showing the engagement of the accommodation ladder at the top to the hull,

Figure 2 is a front view of a vessel including a prior art accommodation ladder suspended therefrom,

Figure 3 is a front view of a vessel including a prior art accommodation ladder supported in part on a wharf,

Figure 4 is a plan view of a vessel showing an accommodation ladder,

Figure 5 is a front view of part of a vessel and showing an accommodation ladder of the present invention suspended therefrom,

Figure 6 is a more detailed side view of part of a vessel and showing the accommodation ladder suspended therefrom,

Figure 7 is a side view of a vessel illustrating two different positions of the accommodation ladder,

Figure 8 is a plan view of a vessel showing an accommodation ladder and showing the arm extended to the vessel when the accommodation ladder is in two different vertical positions as shown in Figure 7,

Figure 9 is a front view of a vessel showing in part the accommodation ladder and wherein the extension arm is in a different position corresponding to different vertical positioning of the accommodation ladder,

Figure 10 is a plan view of a section of a telescopic arm of the present invention,

Figure 11 is a side and sectional view of a telescopic arm of the present invention,

Figure 12 is a plan view of one section of the arm,

Figure 13 is an end view of Figure 12 of direction A,

Figure 14 is a view in direction B of Figure 12.

DETAILED DESCRIPTION

With reference to Figure 4 there is shown a vessel 1 which has a hull 2 to which there is engaged an accommodation ladder 3. The accommodation ladder as shown in Figure 5, will in use be suspended from the vessel to allow for personnel to embark and disembark the vessel. The

accommodation ladder has a first distal end 4 which is provided at for example the main deck level 5. The first distal end 4 may alternatively be provided at a different level however it is provided in a location to allow for a person to conveniently embark and disembark the vessel. The other distal end 6 of the accommodation ladder can be raised and lowered relative to the deck to position it at a height which is appropriate. When the accommodation ladder is being in used to allow personnel to embark and disembark the vessel whilst the vessel is at sea, the second distal end 6 is normally positioned proximate to the water level.

The accommodation ladder includes a staircase section 7 consisting of a flight of stairs and a supporting structure and is normally a substantially rigid and elongate (straight) section. This staircase section may include moving parts which allows for the staircase section to adopt a different configuration depending on the inclination of the staircase section.

With reference to Figures 4 and 5, it can be seen that the accommodation, in the in use position, can be positioned adjacent to the hull of the vessel. The first end 4 of the staircase section is proximate most to the hull. The positioning of the ladder at a location of the perimeter of the hull may be where the shape of the hull is such that the distance between the accommodation ladder increases towards the second end 6.

As an accommodation ladder is normally also suspended from the hull by rope or cable attached somewhere along and normally towards the second end 6 of the staircase section, a rope extends from davits placed on or above the deck of the vessel to the accommodation ladder at a point on the hull where the hull is not planar. Without any lateral support towards the second distal end the ladder will be free to swing. This is because the connection of the accommodation ladder to the hull of the vessel at the first end 4 is such that it can pivot to allow for the second distal end to move in a horizontal direction.

In order to provide lateral support to the accommodation ladder when in the in use condition as for example shown in Figures 4 and 5, a support means 8 is provided to extend from the accommodation ladder. The support means provides a lateral support to the accommodation ladder by being engaged to the staircase section at a region thereof away from the first end 4 and towards or at the second end 6. It extends towards the hull of the vessel to engage therewith. The support means is able to contact against the hull of the vessel to provide the lateral support to the staircase section. The support means consists of an elongate arm which in use is in a rigid condition. When extending between the staircase section and hull. The arm prevents the accommodation ladder from swinging towards the hull of the vessel. Although not essential, having the rope extending from the stair case section to the hull at an angle and extending from

the ladder upwards and towards the hull, a natural biasing of the staircase section towards the hull can be achieved.

The arm is preferably permanently secured to the staircase section of the accommodation ladder but merely rests against the hull. It may in an alternative form become engaged and secured to the hull of a vessel such as by use of suction cups or pads. The arm can be positioned substantially at the second end 6 or alternatively may be positioned in between the second end 6 and the first end 4 of the staircase section. The arm may be retro fittable to existing accommodation ladders and may hence be secured to a portion of the accommodation ladder by a suitable fastening means such as a bolt or by welding.

In an in use position the arm is preferably rigid. However the arm 8 is selectively movable relative to the staircase section. Indeed the arm may need to be collapsed when the accommodation ladder is being moved. Collapsing of the arm is preferably provided as a result of the arm being telescopic. Alternatively the arm may be articulated or a combination of telescopic and articulated. The movement of the second end 9 of the arm relative to the first end 10 is also necessary if the incline positioning of the accommodation ladder needs to be adjusted. For example where a ship is at sea but its loading levels are changed, the incline of the staircase structure may need to be adjusted to keep the second end of the stair case section proximate to the water level. With reference to Figure 7, the staircase section 7 may need to be adjusted from a lower position to a more elevated position 7A. In the more elevated position the staircase section 7A positions the second end 6 of the staircase section is at a more elevated position. Unless the hull of the vessel is substantially vertical at the point where the accommodation ladder is provided, an adjustment will also need to be made to the length of the arm 8.

With reference to Figure 8, there is shown an accommodation ladder wherein the arm 8 extending from the staircase section 7 engages against the hull at the second end 9. The hull laterally upward from the point of the accommodation ladder where the arm is engaged is further away than in the more elevated position of the accommodation ladder as shown in Figure 7. In the more elevated position the arm 8A needs to be of a shorter length in order for its second end 9 to engage with the hull. Accordingly in a preferred form of the invention, the arm is extendable in a telescopic manner. The adjustment of the total length of the arm can be made to suit. Such a change in length can also be seen in Figure 9. The arm can be placed in a variety of different conditions of length in each of which the arm is in a rigid condition.

With reference to Figure 10-14 the telescopic arm preferably consists of a first section 12 which is engageable to the staircase section of the accommodation ladder. A flange 13 may for

example be engaged to an end of the first section 12 which can be secured by for example bolting or welding to the staircase section. This first section may alternatively be engaged to the staircase section in a pivotable manner so that this first section can move by pivoting from a stored position in a plane parallel to the longitudinal direction of the stair case section, to an in use position. In the in use position the first section extends substantially laterally (in horizontal direction) from the staircase section. A rigid point may be secured to the ladder of which the arm is secured to the ladder and may be at a side flange of the staircase section. The first section may also be secured to the bottom of the stair case section and indeed be secured thereto at point along the first section (ie not necessarily only at an end thereof). The first section may itself not extend laterally beyond the side of the staircase section and instead provide a shell for the storage of additional sections to telescopically extend therefrom. The first section is for example an RHS and may be made from a suitable metal such as steel or aluminum. To the first section there is engaged at least one other section. With reference to Figure 2, a second section 14 is engaged to extend from and partly within the first section 12. The external size of the second section is smaller than the internal size of the first section and hence the second section can be moved telescopically to the first section. A plurality of bearing pads 15 are provided to allow for a reasonably close fitting sliding relationship to be established between the first and second sections. The bearing pads 15 may for example be made of teflon and are engaged appropriately towards the distal ends of the first and second sections so that they provide a means for bearing the RHS sections. The bearing pads also prevent a disengagement of the first and the second sections (12, 14) from occurring as they will collide as the sections are extended to their limit. Engaged to the second section may be any number of further sections which like the telescopic relationship between the second and first sections, can expand in a telescopic manner. The section furthestmost from the first section 12 has provided at its distal end a rubber or plastic pad which is of a shape suitable to allow this to be positioned against the hull of the vessel. Such a pad may hence have a relatively large surface area to be exposed and to engage to the surface of the hull so as to spread the pressure exerted by any lateral force of the accommodation ladder towards the hull.

The sections are lockable relative to each other by, for example the use of a pin 16. The pin 16 is engageable through an opening such a hole 17 of a first section (for example the first section 12) and when a hole 18 of the second section 14 is aligned therewith, the pin can also extend through that hole. When extending through both holes, the pin will prevent any further longitudinal movement between the first and second sections thereby effectively locking the two sections together. Such a locking relationship can be established between all pairs of sections of

the arm. With reference to Figure 12, the second section has for example 5 holes. The provision of a plurality of holes the adjustment of the length of the arm can be appropriately made. The spacing and number of the holes of some of the sections may be greater than others as some of the sections may provide for a more refined adjustment in total length of the arm to some of the other sections.

The sections of the arm preferably also include an engagement region 19 such as for example the upstand 19 as shown in Figures 11, 12 and 13. This upstand 19 is for example a handle or loop which is engaged to the distal end of the section. It allows for, for example a boat hook to engage therewith. A boat hook can then push or pull the section to extend or retract this from an inward more section. It may only be the section furthestmost from the first section 12 which provides this engagement region however in the preferred form it is each section other than the first section 12 which provides such an engagement region at its distal end.

CLAIMS

1. A support means for an accommodation ladder of a kind engaged to a vessel which in an in use condition has a rigid elongate stair case section thereof suspended adjacent the hull of said vessel, said rigid elongate stair case section including a first distal end which in use is fixed to said vessel and a second distal end movable in at least a vertical direction to the first distal end wherein said support means comprises an arm including a first end to be engaged to said stair case section at a region thereof which is away from said first distal end and wherein said arm extends laterally from said rigid elongate stair case section to position a second end of said arm, when said accommodation ladder is in said in use condition, against the surface of said hull.
2. A support means as claimed in claim 1 wherein said arm is a telescopic arm whereby the distance between said first end and said second end can be varied.
3. A support means as claimed in claims 1 or 2 wherein said arm is articulatable.
4. A support means as claimed in any one of claims 1 or 3 wherein said arm includes a securing region at which said arm is able to engage to the stair case section in a rigid manner.
5. A support means as claimed in any one of claims 1 or 4 wherein said arm includes at its second end, an impact absorption means.
6. A support means as claimed in claim 5 wherein said impact absorption means is a rubber end piece engages to the second end of the arm.
7. A support means as claimed in claim 6 wherein said rubber end piece is of a larger surface area than the cross sectional area (transverse to its longitudinal direction) of the arm at its second end.
8. A support means as claimed in any one of claims 1 or 7 wherein said arm is made up of at least two sections which are telescopically slidable relative to each other.
9. A support means as claimed in claim 8 wherein said at least two sections are able to be locked from sliding by a means to lock.

10. A support means as claimed in claim 9 wherein at least two sections include a hole each, the holes able to be moved to an overlying relationship, said means to lock being a pin insertable into the hole of each of said at least two sections when such holes are in an overlapping relationship.

11. A support means as claimed in any one of claims 1 or 10 wherein said arm includes at least its second end, an engagement region with which a means to move said arm can engage.

12. A support means as claimed in claim 11 wherein said engagement region is an upstand from the distal most of said at least two sections.

13. A support means as claimed in claim 12 wherein said upstand is provided in a manner such that a boat hook can engage therewith.

14. A support means as claimed in any one of claims 11 to 13 wherein the end away from said first end of said arm, of each said at least two sections includes a said engagement region.

15. A support means as claimed in any one of claims 1 to 14 wherein said arm is able to position the second end, from said first end at multiple distances.

16. An accommodation ladder of a kind engaged to a vessel which in an in use condition has a rigid elongate stair case section thereof suspended adjacent the hull of said vessel, said rigid elongate stair case section including a first distal end secured to said vessel and a second distal end movable in at least a vertical direction to the first distal end, said accommodation ladder including a support means comprises an arm including a first end to be engaged to said stair case section at a region thereof which is away from said first distal end, said arm is able to extend laterally from said rigid elongate stair case section to position a second end of said arm, when said accommodation ladder is in said in use condition, against the surface of said hull.

17. An accommodation ladder as claimed in claim 16 wherein said arm is articulatable relative to said stair case section.

18. An accommodation ladder as claimed in claim 16 wherein said arm is non articulatable relative to said stair case section.
19. An accommodation ladder as claimed in any one of claims 16 to 18 wherein said arm is a telescopic arm such that the distance between said first end and said second end can be varied.
20. An accommodation ladder as claimed in any one of claims 16 to 19 wherein said arm extends substantially horizontally from said stair case section at least when in an in use condition.
21. An accommodation ladder as claimed in any one of claims 16 to 20 wherein said arm includes an engagement region is able to engage said arm to the stair case section in a rigid manner.
22. An accommodation ladder as claimed in any one of claims 16 to 21 wherein said arm includes at its second end, an impact absorption means.
23. An accommodation ladder as claimed in claim 22 wherein said impact absorption means is a rubber end piece engages to the second end of the arm.
24. An accommodation ladder as claimed in claim 23 wherein said rubber end piece is of a larger surface area than the cross sectional area (transverse to its longitudinal direction) of the arm at its second end.
25. An accommodation ladder as claimed in any one of claims 16 to 24 wherein said arm is made up of at least two sections which are telescopically slidable relative to each other.
26. An accommodation ladder as claimed in claim 25 wherein said at least two sections are able to be locked from sliding by a means to lock.
27. An accommodation ladder as claimed in claim 26 wherein at least two sections include a hole each, the holes able to be moved to an overlying relationship, said means to lock being a pin insertable into the hole of each of said at least two sections when such holes are in an overlapping relationship.

28. An accommodation ladder as claimed in any one of claims 16 to 27 wherein said arm includes at at least its second end, an engagement region with which a means to move said arm can engage.
29. An accommodation ladder as claimed in claim 28 wherein said engagement region is an upstand from the distal most of said at least two sections.
30. An accommodation ladder as claimed in claim 29 wherein said upstand is provided in a manner such that a boat hook can engage therewith.
31. An accommodation ladder as claimed in any one of claims 28 to 30 wherein the end away from said first end of said arm, of each said at least two sections includes a said engagement region.
32. An accommodation ladder as claimed in any one of claims 16 to 31 wherein said arm is able to position the second end , from said first end at multiple distances.
33. A method of supporting an accommodation ladder of a kind engaged to a vessel so that in an in use condition a rigid elongate stair case section thereof is suspended adjacent the hull of said vessel, said rigid elongate stair case section including a first distal end secured to said vessel and a second distal end movable in at least a vertical direction to the first distal end and wherein the distance to the hull from the second distal end is greater than the distance from the hull to the first distal end said method including providing the accommodation ladder with an arm which includes a first end engaged to said stair case section at a region thereof which is away from said first distal end, said arm extending laterally from said rigid elongate stair case section to position a second end of said arm against the surface of said hull.
34. A method as claimed in claim 33 wherein the staircase section is suspended by a rope or cable which extends between the vessel and the stair case section to in use impart a component of force on the staircase section which is towards the hull of the vessel.