

RAMP

Technical Field

- 5 The invention relates to field of ship bow ramps and of a method of raising and lowering a bow ramp.

Background Art

- 10 Ships with both ramps typically have a multi piece bow ramp. Such ramps require a multitude of cables to raise and lower each piece of the bow ramp. Each cable requires a motor, so that in total four or more motors are required. If the small piece at the front of the bow ram is not raised and lowered by cables it tends to move about.

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It would be desirable to have a bow ramp that is multi piece yet only requires one cable per side to raise and lower or at least provides industry or the public with an alternative.

20 Summary of the Invention

Accordingly in a first embodiment the invention can be said to consist in a bow ramp for a boat comprising:

- a first part hinged to said boat at a first end;
- 25 a second part hinge to said first part at a second end of said first part;
- raising and lowering means for raising and lowering said ramp, said raising and lowering means comprising:
 - at least a wire on one side of said ramp, connected to both said first and second parts, and
 - 30 a motor for winding said wire,
 - wherein said wire controls both said first and second parts during raising and lowering said ramp..

Preferably said motor is electric.

Preferably said motor is diesel or petrol.

5 Preferably said wire is anchored to said first part.

Preferably said second part is hingable about 270 degrees

10 Preferably said ramp further including a wire and motor on both sides of said ramp.

Accordingly in a second embodiment the invention can be said to consist in a method of lowering a secured bow ramp as described above comprising the steps of:

15 tightening said wire to control said second part; and
releasing said wire to lower said first part, said second part lowering on completion of the lowering of said first part.

Accordingly in a first embodiment the invention can be said to consist in a method of raising a lowered bow ramp as described above comprising the steps of:

20 tightening said wire to control said second part;
tightening said wire to raise said first and second parts, said second part remaining fixed relative to said first part as said ramp is raised;
securing said first when fully raised; and
25 releasing said wire to lower said second part to a secure position. within said boat.

Brief Description of Drawings

30 A bow ramp in accordance with the invention will now be described by way of example with reference to the remaining accompanying drawings in which:

Figure 1 is a side view of a ship with the bow ramp of the present invention,.

Figure 2 is a schematic view of the wire cable of the bow ramp of the present invention,

Figure 3 is a side view of a ship with the bow ramp of the present invention,
5 with the bow ramp fully open,

Figure 4 is a side view of a ship with the bow ramp of the present invention,
with the bow ramp partially open,

10 **Figure 5** is a further side view of a ship with the bow ramp of the present invention, with the bow ramp partially open,

Figure 6 is a side view of a ship with the bow ramp of the present invention,
with the bow ramp partially closed, and
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Figure 7 is a side view of a ship with the bow ramp of the present invention,
with the bow ramp fully closed,

Detailed Description of Invention

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With reference to figure 1, the bow ramp of the present invention is fitted to a ship 120. The bow ramp 109 consists of a first part 101, a second part 102 and a third part 103.. The first part 101 of the bow ramp is hingably 130 connected to the ship as is known in the art. The bow ramp also has a second part which is connected at the
25 extreme end 108 of the first part 101 and is hinged 140 to the first part 101. The bow ramp may also have a third small flexible tip 103 hinged at the extreme end of the second part 102.

With reference to Figures 1 to 7 the bow ramp 109 is raised and lowered using
30 a motor or winch 110 and wire wound 170 around a number of pulleys 1, 2, 3, 4 attached to the ramp parts and the bow of the ship. The advantage of the present invention is that by means of the pulleys 1, 2, 3, 4 both the first 101 and second parts 102 of the ramp 109 can be controlled while the ramp 109 is raised and lowered. The third part 103 is generally so small that it does not need to be controlled.

While in the preferred embodiment a motor 110 and wire 170 is used on each side of the ramp 109 in the case of a lightweight ramp 109 on a small ship 120 or in case of a breakdown a motor 110 or wire 170 on one side of the ramp 109 is sufficient to control the multi-part ramp.

In the preferred embodiment the motor 110 used for winding the wire 170 or cable is electric petrol or diesel motor may be used.

Referring to Figure 7, to lower the ramp 109 the second part 102 is unsecured from the ship 120 if it was previously secured. The wire or cable 170 is tightened moving the second part 102 to an upright and controlled position. The first part 101 of the ramp 109 is then unsecured from the bow 180 and the cable 170 is slowly released. Referring more particularly to Figure 6 because the first part 101 of the ramp 109 is heavier than the second part 102 the ramp 109 lowers while retaining the second part 102 in the same position. A further ramp position can be seen in Figure 5.

Referring to Figure 5, once the first part 101 of the ramp 109 is fully lowered the cable 170 between the first 101 and second ramp 102 parts extends and the second ramp part 102 is lowered. The fully lowered ramp 109 can be seen in Figure 3

The wire winding that allows for this is seen clearly in Figures 1 and 2. A winch 110 tightens and releases a cable 170. The other end of the cable/wire 170 is secured near to the end of the first part of the ramp. From the winch 110 the wire passes through a first pulley 1 on the boat, then through a second pulley 2 on the bow. It then passes through a pulley 3 near the end of the first part 101 of the bow ramp 109. The pulley 3 on the bow ramp first part is offset back from the side of the ramp so that the ramp can be fully closed.

The wire then passes through a pulley on a cantilever 150 connected to the second ramp part 102. Instead of being straight the cantilever is angled at an angle 179 to allow gravitational forces to work on the second part 102 when the first part 101 is fully raised. In the example embodiment the angle 179 is 150 degrees.

The wire 170 then passes back through the first part pulley 3 up to the bow pulley 2, back through the first part pulley 3, through the second part pulley 4 and is secured to the first part 101. While described with a double loop, if the bow ramp 109 was sufficiently, light a single loop could be used. Likewise if the bow ramp 109 was
5 heavier further loops could be used

Raising the ramp 109 is the reverse of lowering the ramp 109, as the cable 170 is wound up the second part 102 of the ramp 109 is moved into a secure position as seen in Figure 4.. This happens first because the second ramp part 102 is lighter than
10 the first ramp part 101. Once the cable 170 between the first 101 and second parts 102 and in particular the pulleys located on the first and second parts 3, 4 can tighten no further the first ramp part 101 along with the second ramp 102 part is raised as seen in Figure 5.

Referring to Figure 6 once the first ramp part 101 is fully raised it is secured to the bow of the ship 120 by a securing bolt or other mechanism 190, because the first ramp part 101 is now secured and because the gravitational forces acting on the second ramp part 102 are pulling it into the boat/ship, once the wire 170 is slowly
15 release gravity causes the second ramp part 102 to lower within the boat as the wire is released so it can be secured.
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The foregoing describes the invention including preferred forms thereof. Alterations and modifications as will be obvious to those skilled in the art are intended to be incorporated in the scope hereof as defined by the accompanying
25 claims.

What is claimed is:

1. A bow ramp for a boat comprising:
a first part hinged to said boat at a first end;
5 a second part hinged to said first part at a second end of said first part;
raising and lowering means for raising and lowering said ramp, said raising
and lowering means comprising:
at least a wire on one side of said ramp, connected to both said first and
second parts, and
10 a motor for winding said wire,
wherein said wire controls both said first and second parts during raising and
lowering said ramp.
2. A bow ramp as claimed in claim 1 wherein said second part is smaller and
15 lighter than said first part.
3. A bow ramp for a boat as claimed in claim 1 or claim 2 wherein said motor is
electric.
- 20 4. A bow ramp for a boat as claimed in claim 1 or claim 2 wherein said motor is
diesel or petrol.
5. A bow ramp for a boat as claimed in any one of claims 1 to 4 wherein said
wire is anchored to said first part.
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6. A bow ramp for a boat as claimed in any one of claims 1 to 5 wherein said
second part is hingable about 240 degrees
7. A bow ramp for a boat as claimed in any one of claims 1 to 6 further including
30 a wire and motor on both sides of said ramp.
8. A method of lowering a secured bow ramp as claimed in any one of claims 1
to 7 comprising the steps of:

tightening said wire to control said second part; and
releasing said wire to lower said first part, said second part lowering on
completion of the lowering of said first part.

- 5 9. A method of raising a lowered bow ramp as claimed in any one of claims 1 to
7 comprising the steps of:

tightening said wire to control said second part;
tightening said wire to raise said first and second parts, said second part remaining
fixed relative to said first part as said ramp is raised;

- 10 securing said first when fully raised; and
releasing said wire to lower said second part to a secure position. within said boat.