Aug. 22, 1961 A. H. HAUSER 2,997,188

LOAD HANDLING BOATS

Filed April 25, 1956 2 Sheets-Sheet 1

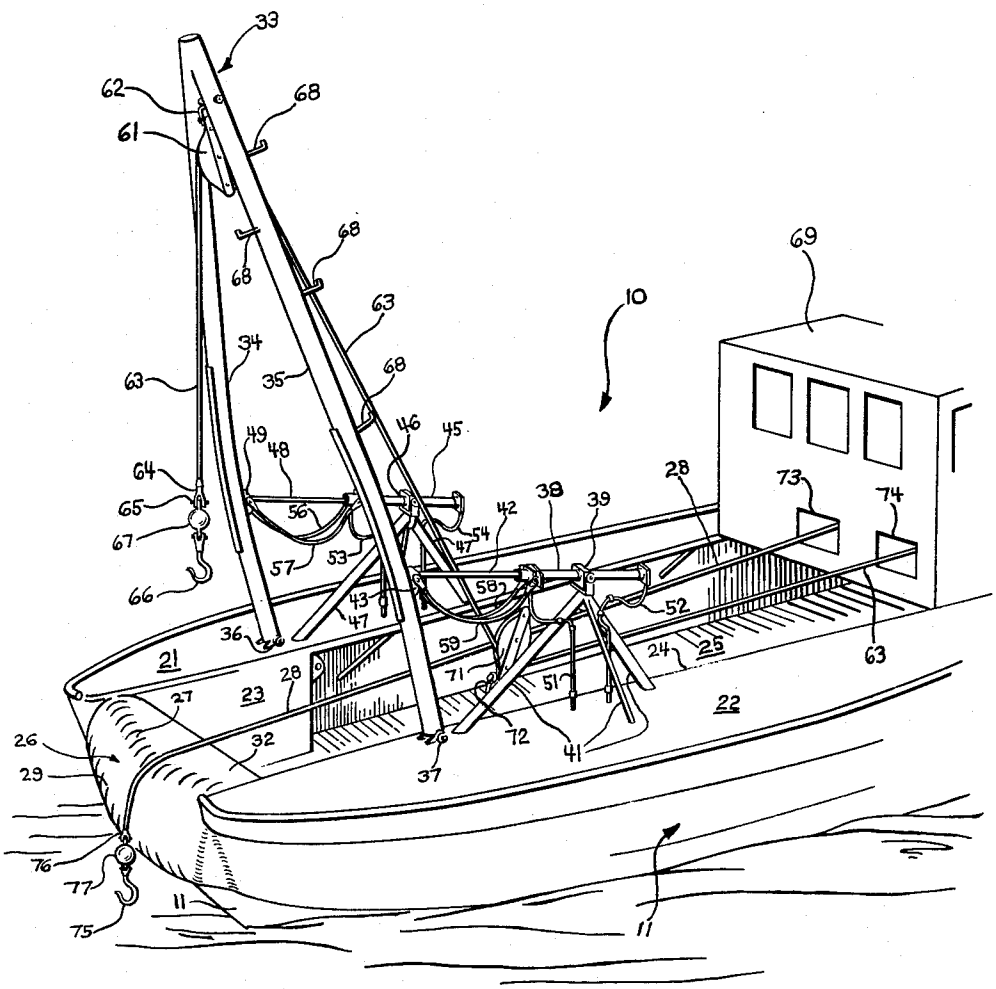

Fig. 1

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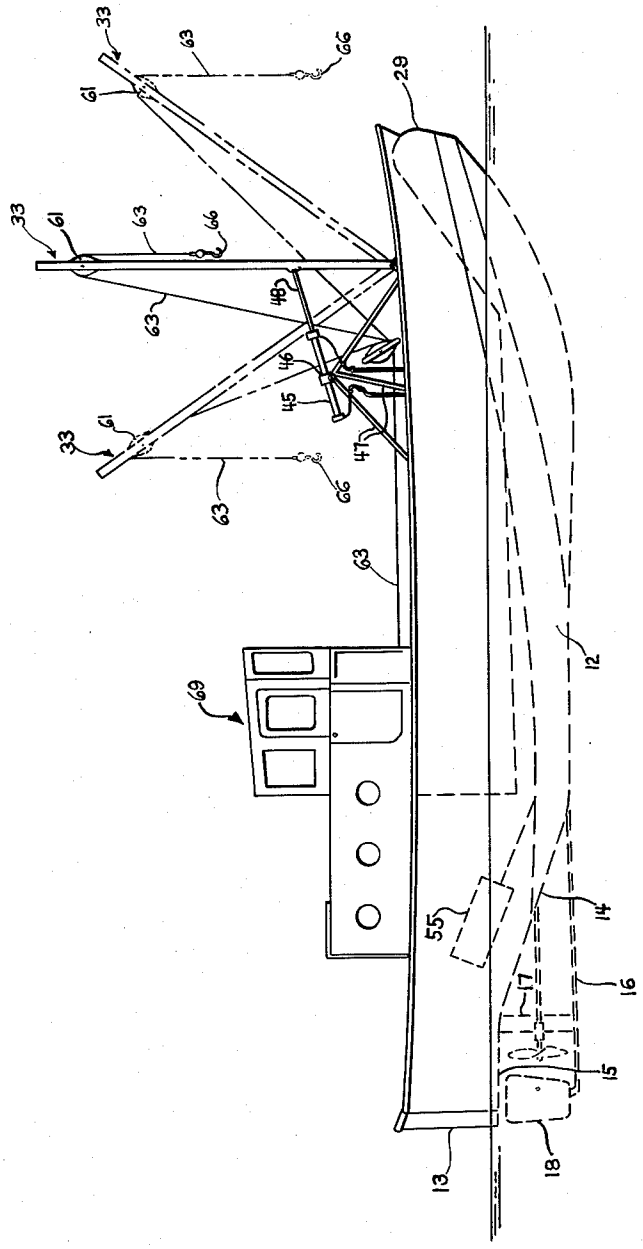

Fig. 2

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LOAD HANDLING BOATS

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6 Claims. (Cl. 214—15)
(Granted under Title 35, U.S. Code (1952), sec. 266)

The invention described herein may be manufactured and used by or for the Government of the United States for governmental purposes without the payment to me of any royalty thereon in accordance with the provisions of 35 U.S.C. 266.

This invention relates to improvements in "load handling boats" and more particularly to such boats in which the load handling takes place across the bow portion of the boat.

In the past many attempts have been made to provide multi-purpose load handling boats which would incorporate all the advantages that can be gained from the use of a boat as compared to a larger ship while avoiding the disadvantages of such a smaller floating structure. Such boats have included the use of extensible ramps and fixed hoisting posts to permit the dragging aboard of the loads to be handled by the boat.

It has even been contemplated to locate these ramps and fixed post loading aids to be used in conjunction with them in the stern of the boat but even this construction was not entirely satisfactory since it required the opening of a part of the hull and thus lowered the seaworthiness of the boat. At the same time the permanently braced hoisting posts, by being fixed in position, did not permit the shifting of loads from over the bow to the cockpit or cargo space. Further, the handling of the cargo with such stationary hoisting posts in conjunction with the movable ramp did not result in the most satisfactory handling of the loads since a certain amount of dragging aboard of such loads became inevitable.

The present invention overcomes these shortcomings by providing for the handling of loads across the bow of the boat without resort to a ramp or hull closure device. This is accomplished by providing a movable suspension point for the loads to be handled, such point being able to move from inboard to outboard while being under positive control at all times.

Accordingly, it is an object of this invention to provide a new and improved load handling boat in which the load is handled across the bow of the boat.

A further object of this invention is to provide a new and improved load handling boat in which the load is controlled from a movable suspension point capable of moving from inboard to outboard while being maintained under positive control at all times.

A still further object of this invention is to provide a new and improved load handling boat which is maneuverable about a vertical axis in the vicinity of the bow.

Other objects and advantages of the invention will become apparent during the course of the following description when read in conjunction with the accompanying drawings, wherein:

FIG. 1 is a perspective view of the forward portion of the bow loading boat, illustrating the bow bolster and the placement of the A frame in relation to the cargo space.

FIG. 2 is a side view of the entire bow loading boat showing the fore and aft limits of the pivoted A frame.

Referring now more particularly to the drawing, there is shown a boat 10 incorporating the features of the invention. The boat 10 consists of a hull 11 having a V-type bottom 12 which terminates in a square flat aft portion 13. The aft portion 13 of the hull 11 consists of a dead water rise section 14 and a flat stern section 15. The

rise section 14 and the stern section 15 are planar surfaces.

A skeg 16 extends rearward and is supported by a V-type strut 17. The skeg 16 provides support for a rudder 18. The rudder 18 is journaled in the skeg 16 by means of a pintle (not shown) and is controlled from the inside of the hull in well known manner.

The construction of the hull 11 including its V-shaped bottom 12 assures a minimum resistance to sidewise movement by the stern section of the boat and permits the boat to be evenly swung about within a small radius. The hull construction further makes it possible to turn the boat about an axis located in the vicinity of the bow. To obtain this desirable boat-handling characteristic, the dead water rise 14 and the flat stern section 15 extend, in the preferred embodiment, through a distance which is between one-quarter and one-third of the entire hull length.

A split main deck, consisting of sides 21 and 22, is connected to the hull along its outboard edge. The inboard edges of the split main deck sides 21, 22 are respectively connected by vertical bulkheads 23, 24 to the bottom 12 of the boat. A flat cargo bottom 25 may be positioned above the V-type bottom 12 in well known manner so as to provide a flat cargo handling platform above the hull of the boat.

The boat 10 has a bolster bow 26. The rim 27 of the bolster bow 26 is of V-shaped form so that the drag wires can be guided on the apex of the V. The forward face 29 of the bolster 26 is blunt as shown in FIG. 2 while the rear portion of the bolster 26 terminates in a ramp 32 leading down to the well deck or cargo platform 25. The width of the bolster may be modified to suit the width of the boat as well as the type of cargo to be handled across the bow. If it is desired to use the boat of this invention as a cable boat then a relatively narrow bolster may be adequate.

An A frame 33 having legs 34 and 35 is pivotally connected through hinged mountings 36 and 37, respectively, to the sides 21 and 22 respectively, of the main deck.

A hydraulic cylinder 38 is mounted in a universal joint 39. The universal joint 39 is positioned above the main deck side 24 by a tripod support 41 which is attached to the main deck side 24. A shaft 42 connects the piston (not shown) of the hydraulic cylinder 38 to a pivot joint 43 of the A frame leg 35.

A hydraulic cylinder 45 is mounted in a universal joint 46. A tripod support 47 attached to the main deck side 21 positions the universal joint 46 above that main deck side. A shaft 48 connects the piston (not shown) of the hydraulic cylinder 45 to a pivot joint 49 of the A frame leg 34.

A hydraulic line 51 is attached to a forward port opening (not shown) of the hydraulic cylinder 38. A hydraulic line 52 is connected to a port opening (not shown) at the aft end of the hydraulic cylinder 38. Similar hydraulic lines 53 and 54 are attached to the forward and aft port openings (not shown) of the hydraulic cylinder 45.

A control valve (not shown) of conventional type is used to simultaneously control the flow of hydraulic fluid to the two hydraulic cylinders 38 and 45 so that the pivotable A frame 33 can be tilted forward or aft as desired. In the specific embodiment, the hydraulic pressure is derived from a pump driven by the main propulsion unit 55 located in the after engine space but any other well known source of hydraulic pressure may be utilized.

As a safety measure, the extreme forward travel of the pivoted A frame 33 is limited by cables 56, 57, 58 and 59 which are connected between the pivot joints 43 and 49, and the forward ends of the hydraulic cylinders 38 and 45.

A fair-lead block **61** is mounted through a bracket **62** to the vertex of the A frame **33**. A hoisting wire **63** runs over the block **61** and terminates at its forward end in a cable clamp **64**. The cable clamp **64** has a slotted end pierced by a removable pin **65**. A hook **66** may be attached to the cable clamp **65** through a universal ball joint **67**. The hook **66** is attached to the cargo to be stored in the boat **10**. It should, of course, be understood that other means of fastening the hoisting wire **63** to the cargo may be employed.

To permit the climbing of the A frame 33 for maintenance and operational purposes, foot supports **68** are attached at appropriate distances along the A frame leg **35**.

A wheel house **69** is positioned above the cargo space and attached at its sides to the main deck sides **21** and **22**.

In operation, when cargo is to be loaded onto the boat **10** the fair-lead block **61** is extended over the bow **26** by tilting forward the A frame **33**. A vertical purchase on the cargo to be loaded onto the boat is then obtained by means of the hoisting wire **63**. The horizontal purchase on the cargo is obtained through the drag wire **28**.

Wire **63** runs under a block **71** which is fastened to the boat **10** through a bracket **72**. Wires **28** and **63** pass through appropriate openings **73** and **74**, respectively, into the wheel house **69**. In the wheel house **69** the wires **28** and **63** may be wound upon or unwound from appropriate drums, as is well known in the art.

The drag wire **28** is provided with a hook **75** which is connected to a cable clamp **76** at the end of the wire **28** through a universal ball joint **77**.

The cargo is hoisted by taking up on the wire **63** until it is above the rim **27** of the bolster **26**. The A frame **33** is then swung inward over the cargo space and the cargo may thereafter be shifted aft by shortening the drag wire **28**, as desired.

While there has been shown and described an invention in connection with certain specific embodiments, it will, of course, be understood that it is not intended nor desired to be limited thereto since it is apparent that the principles herein disclosed are susceptible of numerous other applications and modifications may be made in the structural arrangement and in the instrumentalities employed without departing from the spirit and scope of this invention as set forth in the appended claims.

What is claimed is:

1. A load handling boat comprising a hull having a V-type bottom, said hull being full bodied forward and terminating in a square flat aft, the aft portion of said hull having a dead water rise section and a flat stern section, said rise section and said stern section being planar surfaces, said hull having a bolster bow, a rudder, means for operating said rudder from inside said hull, a frame mounted pivotally to said hull, means interconnecting said frame and said hull for positively controlling the position of said frame, said frame being movable from inboard to outboard across said bolster bow, hoisting means connected to said frame, and a space in said boat positioned to receive loads from said hoisting means, said boat being maneuverable about an axis in the vicinity of said bow so as to permit continuous bow loading of said boat under adverse wind and water current conditions.

2. A load handling boat comprising a hull having a V-type bottom, said hull being full bodied forward and terminating in a square flat aft, the aft portion of said hull having a dead water rise section and a flat stern section, said rise section and said stern section being planar surfaces, said hull having a bolster bow, a main deck connected to said hull, a rudder, means for operating said rudder from inside said hull, a frame mounted pivotally to said main deck, means interconnecting said frame and said main deck for positively controlling the position of said frame, said frame being movable from inboard to outboard across said bolster bow, hoisting means connected to said frame, and a space in said boat positioned to receive loads from said hoisting means, said boat being maneuverable about an axis in the vicinity of said bow so as to permit continuous bow loading of said boat under adverse wind and water current conditions.

3. A load handling boat comprising a hull having a V-type bottom, said hull being full bodied forward and terminating in a square flat aft, the aft portion of said hull having a dead water rise section and a flat stern section, said rise section and said stern section being planar surfaces, said hull having a bolster bow, a rudder, means for operating said rudder from inside said hull, a split main deck connected to said hull, an A frame mounted pivotally to said split main deck, the legs of said A frame being connected to the respective slides of said split main deck, means interconnecting said frame and said main deck for positively controlling the position of said frame, said frame being movable from inboard to outboard across said bolster bow, hoisting means connected to said frame, and a space in said boat positioned to receive loads from said hoisting means, said boat being maneuverable about an axis in the vicinity of said bow so as to permit continuous bow loading of said boat under adverse wind and water current conditions.

4. A load handling boat according to claim 1 in which said dead water rise section and said flat stern section extend through a distance which is between ¼ and ⅓ of the length of the entire hull.

5. A load handling boat according to claim 2 in which said dead water rise section and said flat stern section extend through a distance which is between ¼ and ⅓ of the length of the entire hull.

6. A load handling boat according to claim 3 in which said dead water rise section and said flat stern section extend through a distance which is between ⅓ and ¼ of the length of the entire hull.

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