April 21, 1931. G. P. FISHER ET AL 1,801,548

BARGE FOR PULP WOOD AND THE LIKE

Original Filed May 31, 1928 4 Sheets-Sheet 1

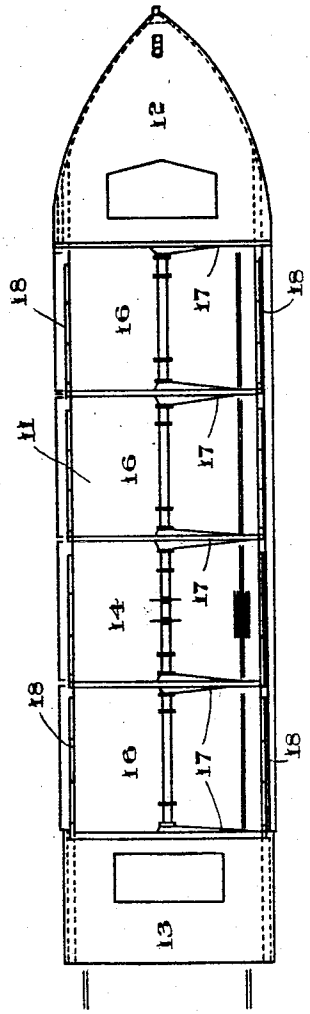


FIG. 1

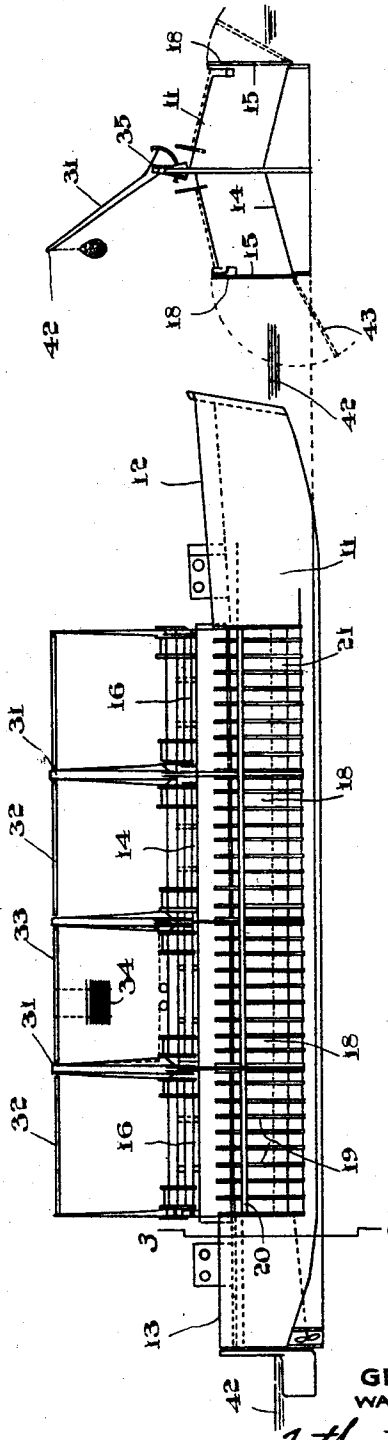


FIG. 2

FIG. 3

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BARGE FOR PULP WOOD AND THE LIKE

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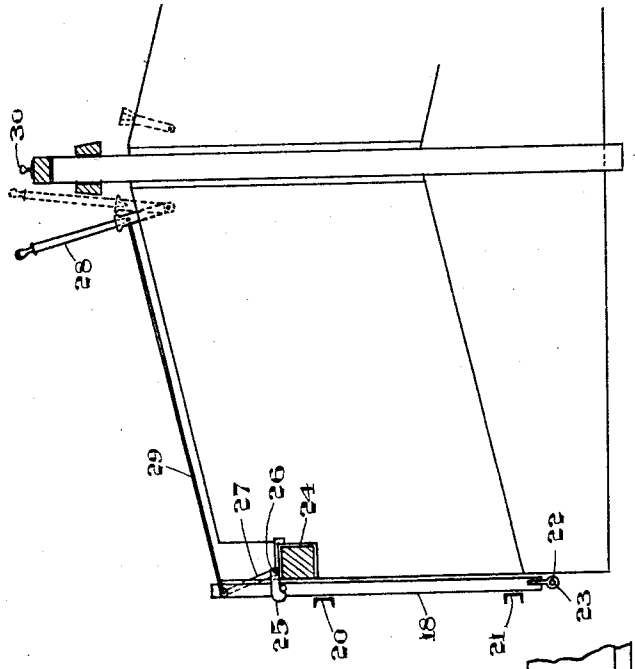


FIG. 5

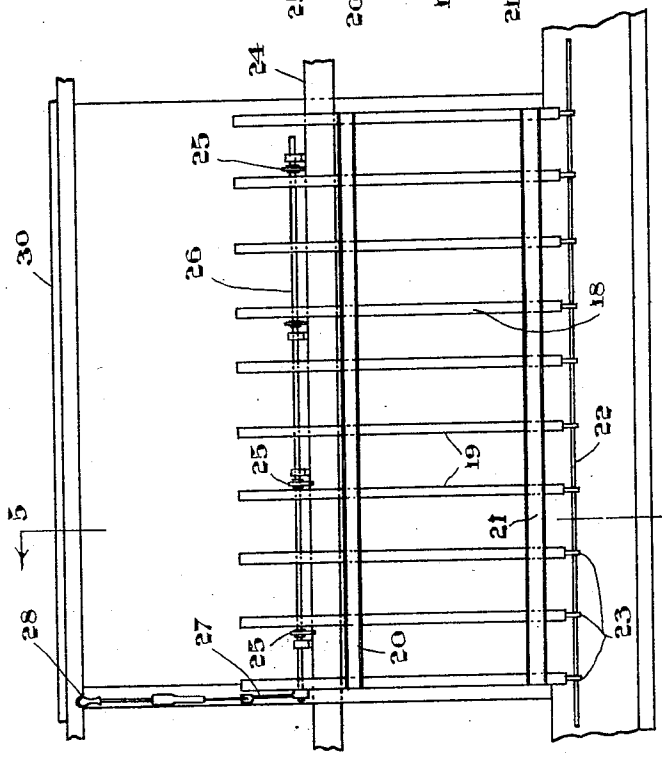


FIG. 4

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BARGE FOR PULP WOOD AND THE LIKE

Original Filed May 31, 1928 4 Sheets-Sheet 3

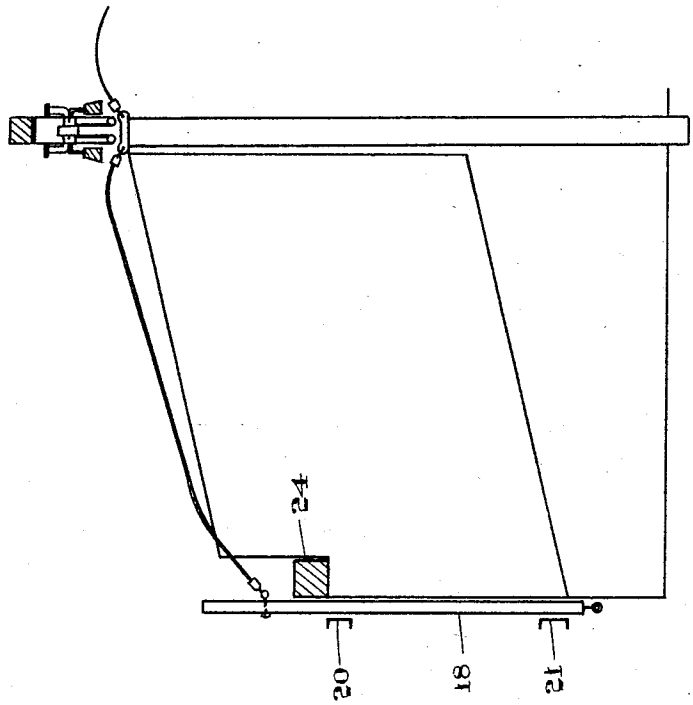


FIG.7

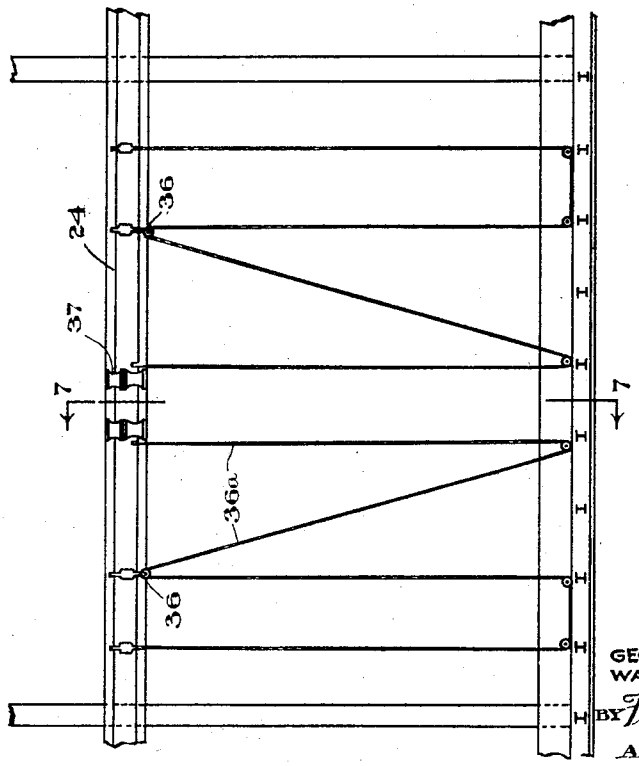


FIG.6

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BARGE FOR PULP WOOD AND THE LIKE

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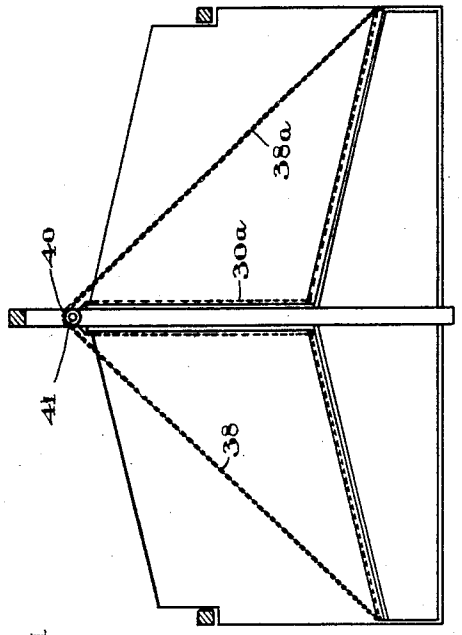


FIG. 9

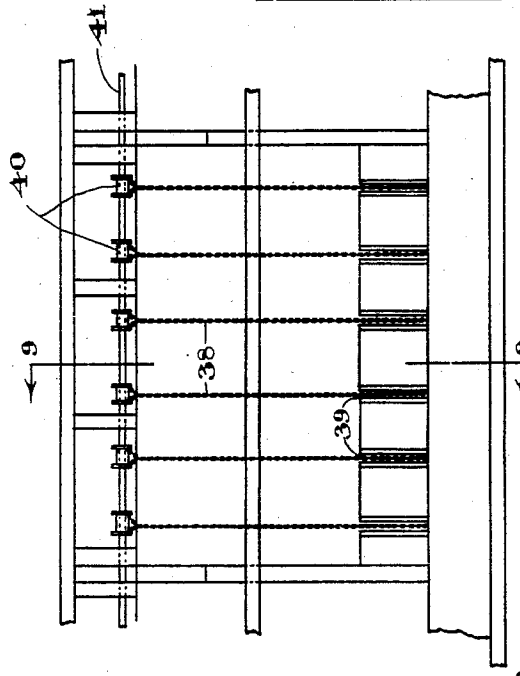


FIG. 8

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1,801,548

UNITED STATES PATENT OFFICE

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BARGE FOR PULP WOOD AND THE LIKE

Application filed May 31, 1928, Serial No. 281,854. Renewed February 27, 1931.

This invention relates to new and useful improvements in dump barges and particularly to barges for carrying pulp wood, saw logs, and the like.

The object of the invention is to provide a vessel or barge of simple construction which will be very easily and quickly loaded and unloaded with little manual labour.

Another object is to provide a barge which will be unloaded by mechanically operated means.

According to our invention the hull of the vessel or barge is constructed to carry all of its load on deck. The deck is of the ridge type sloping upwardly and from the side of the vessel towards the centre, to facilitate the unloading of the cargo which is held in place on said deck by hinged doors, each of which is built of a series of stanchions suitably held together. The cargo deck is divided into compartments by a series of bulk heads extending across the vessel. The forward and after decks extend above the level of the cargo deck to protect the cargo, to provide extra bouyancy for the vessel, to provide suitable quarters for the crew, and also to provide engine space. Means are also provided for discharging the cargo when the logs cannot be floated off. Mechanical means are provided for loading the vessel.

In the drawings which illustrate our invention:—

Figure 1 is a plan view of a barge built according to our invention.

Figure 2 is a side elevation of the barge shown in Figure 1.

Figure 3 is a sectional end elevation of the barge taken on the line 3—3 Figure 2.

Figure 4 is a part side elevation showing in detail the gate.

Figure 5 is a part sectional end elevation taken on the line 5—5 Figure 4.

Figure 6 is a part plan of a portion of the barge.

Figure 7 is a part sectional end elevation of the barge taken on the line 7—7 Figure 6.

Figure 8 is a partial side elevation showing the unloading chains.

Figure 9 is a partial sectional end elevation taken on the line 9—9 Figure 8.

Referring more particularly to the drawings, 11 designates the hull of a vessel having a fore deck 12, and an aft deck 13, and the intermediate or cargo deck 14. The cargo deck is made in two sections, each sloping inwardly and upwardly from the sides 15 towards the centre of the vessel. The cargo deck is divided by a longitudinally disposed bulkhead 16 extending between the fore and aft decks which are preferably positioned at a higher level than the cargo deck, to provide accommodation for the crew and for the engines or propelling mechanism. The cargo deck is also divided into separate chambers on each side of the central bulkhead 16 by means of the bulkheads 17, which extend from side to side of the vessel. In the drawing we have shown the cargo deck divided into eight separate chambers, but it will be readily understood that this number is for illustrative purposes only and may be modified to suit the size of logs and the size of barge. Each chamber is provided with a door 18 hingedly attached to the side of the vessel at the deck level. The doors are preferably made of a series of spaced stanchions or slats 19 tied together near their ends by means of the bars 20 and 21. Each of the slats may be provided with an eye bracket 23 pivotally mounted on bars 22 extending the full length of the cargo deck and forming hinged connections for the doors which, in the upright or cargo holding position, are held against longitudinal bars 24 by means of latches. These latches comprise pawls 25 pivotally secured to the bars 24, with the free or hooked ends engaging with round bars each extending the full length of the doors to which they are attached. Each door is provided with a plurality of engaging pawls 25 secured to a common shaft 26, to one end of which a lever 27 is secured, so that on movement of said lever, the pawls may be operated in unison. The levers 27 may each be connected to a hand lever 28 by means of a connecting rod 29 to allow each door to open independently of the others. The centre bulk-

head may be provided with a rail 30 for a mono-rail loading device (not shown). The loading device is shown clearly in Figures 4 and 5.

In Figures 1, 2 and 3, a series of derricks 31 are shown, each pair of derricks being connected together by a beam 32, from which the hoisting ropes 33 depend for lifting the cargo 34 into the chambers formed in the vessel. The ropes are raised and lowered by means of winches in the usual manner. The derricks are shown pivotally mounted on upright members 35, so that cargo may be lifted from each side of the barge. The cargo may be held in place by means of chains or ropes 36*a* which pass around pulleys 36 and are tightened by means of the winches or capstans 37, shown in Figure 6. The chains may be arranged in zig-zag fashion across the top of the cargo or in the manner shown, so that there will be practically no movement of the contents of the vessel while same is in motion. Some of the pulleys 36 are secured to the centre bulkhead while the remainder are secured to the door stanchions 19. The winches may be hand or power operated. To facilitate unloading of the cargo, unloading chains 38 are provided, as shown in Figures 8 and 9. These chains are secured to the side of the hull and fit into grooves 39 formed in the cargo deck. The other ends of the chains are connected to drums 40 secured to a shaft 41 rotatably mounted in suitable bearings. This shaft may be rotated by any suitable means to tighten the chain or draw same from the dotted line position indicated at 30*a* to the full line position indicated at 38*a*, when the cargo is being discharged. It will be readily seen that many modifications may be made in the general construction of the device without departing from the spirit of the invention.

In operation the cargo which may be cut logs, is placed in position on the cargo deck by means of the derricks, or by means of dump trucks traveling on the rail positioned at the centre of the vessel. The slings 42 for the cargo may be of any desired type well known in this art. The gates are in the closed or upright position. The slope of the deck tends to arrange the logs with their longitudinal axes substantially parallel so that the vessel may be easily loaded to its full capacity without necessitating hand labour arranging the logs on the said deck. The chains or ropes 36*a* are tightened over the cargo to hold same in place, by operating the capstans to which the chains are attached. When the vessel is loaded, the cargo deck is partially submerged, as shown by the water levels 42. It will be seen that the fore and aft decks protect the cargo from the front and rear, which the gates, bulkheads and chains hold the cargo firmly in position. In unloading, the chains 36*a* are slackened off and the gates opened by raising the latches holding same. The gates fall outwardly as shown by the dotted lines 43, and, being of the open or slat type, sink below the water level rapidly. The cargo, or the major part of it, rolls outwardly and floats from the deck of the vessel. The vessel rises in the water as the load is being removed and in some cases some of the load remains on deck, and to facilitate the complete discharge of the cargo, the chains 38 are drawn by means of the drums into the position shown as 38*a* in Figure 9, that is, until they form a straight line between the side of the vessel and the drums to which they are attached, forming an angle of approximately 50° with the horizontal. The movement of the chains causes the remaining part of the cargo to be rolled clear of the deck, without necessitating handling of the logs.

The vessel is of very simple construction and provides a vessel or barge which may be quickly loaded and unloaded with the minimum amount of handling of the logs which are used in the paper making industry, and the like. The raised fore and aft decks allow space for the crew and for the necessary mechanism for propelling the vessel and operating the mechanism mounted on the vessel, as well as forming a protection for the cargo and giving additional buoyancy to the vessel. The loading and unloading mechanism is very simple and by providing compartments, the vessel may be partially unloaded without interfering with the remainder of the cargo. By carrying the cargo on deck it has been found that the cost of handling same during the loading operation is about 40 to 50% of the cost of loading steamers by present methods, as practically no labour is required for stowing the cargo into holds. Since at least 75% of the cargo being discharged from the barge herein described rolls or is floated off when the gates are opened and the remaining 25% is unloaded mechanically, no stevedores are required for unloading, thereby saving practically all the expense of handling necessary in vessels where the wood is carried in holds.

Having thus described our invention, what we claim is:—

1. In a barge for carrying pulp wood, a hull having fore and aft decks and a cargo carrying deck intermediate and below same, said cargo deck sloping upwardly and inwardly towards the centre of the vessel, bulkheads above the cargo deck forming compartments, a gate for each compartment hingedly attached to the side of the deck, mechanically operated means for holding the gates and for releasing same, each gate being formed of horizontally spaced bars

suitably braced together, mechanically operated flexible tying members for holding the cargo on the deck, and mechanically operated flexible members adapted when tightened to discharge the cargo from the deck.

2. A device according to claim 1, in which the discharging means comprise a plurality of chains each secured to the sides of the vessel and connected to a winding unit.

3. A barge for carrying pulp wood having a cargo carrying deck sloping upwardly and inwardly towards the centre of the vessel and divided into compartments by bulkheads, gates formed of bars hingedly secured to the side of the deck and forming cargo holding means, pawl means for locking the gates in position, chains secured to means for positioning the gate, chains secured to the sides of the deck and adapted, when tightened, to discharge the cargo from the deck when the gates are opening, and means secured to the vessel for loading same.

4. A barge of the character described comprising a hull presenting fore and aft decks, a cargo carrying deck extending between said first mentioned decks and positioned below the level thereof, a bulk head extending from the fore deck to the aft deck and along the longitudinal center of the cargo deck, transverse bulk heads extending the full width of the hull at points spaced along the length of the longitudinally extending bulk head and cooperating therewith and with the fore and aft decks to form cargo receiving compartments and means associated with each compartment for releasably retaining the cargo therein.

5. A barge of the character described comprising a hull presenting a fore deck, an aft deck, and a cargo carrying deck extending between the fore and aft decks and positioned below the level thereof, a longitudinal bulk head extending from the fore deck to the aft deck and along the central portion of the cargo carrying deck, transverse bulk heads extending the full width of the hull at points spaced along the length of the longitudinal bulk head and cooperating with the latter to provide cargo receiving compartments, said bulk heads also serving as a bracing and strengthening means enabling the hull to withstand the buckling strains to which it is subjected when traveling in rough seas under full load and longitudinally extending members connecting the fore and aft decks at the sides of the vessel and secured to the upper, outer corner portions of the transverse bulk heads.

6. A barge as recited in claim 5 including a door for closing the outer side of each compartment, the lower edges of the doors being hinged to the sides of the hull and the upper edges of the doors being adapted, in the closed position of the doors, to bear against the aforesaid longitudinal members and to be thereby braced against pressure applied to the outer sides of said doors and means for releasably securing the said doors in closed position.

7. A barge of the character described comprising a hull presenting a fore deck, an aft deck and a cargo deck extending between the fore and aft decks and positioned below the level thereof, a longitudinal bulk head extending from the fore deck to the aft deck along the center of the cargo deck, transverse bulk heads extending the full width of the hull at points spaced along the length of the longitudinal bulk head and cooperating with the fore and aft decks and with said longitudinal bulk head to provide a plurality of cargo receiving compartments, means for retaining cargo in said compartments and cargo loading devices mounted upon the upper edge of said longitudinal bulk head.

8. A barge of the character described comprising a hull presenting a fore deck, an aft deck, a cargo carrying deck extending between the fore and aft decks and positioned below the level thereof, a longitudinal bulk head extending from the fore deck to the aft deck along the center of the cargo deck, transverse bulk heads extending the full width of the hull at points spaced along the length of the longitudinal bulk head and cooperating with the latter and with the fore and aft decks to provide a plurality of cargo receiving compartments, longitudinal members extending along the sides of the ship from the fore to the aft deck and secured to the upper, outer corners of the transverse bulk heads, a plurality of doors for closing the outer sides of said compartments, said doors having their lower edges hinged to the sides of the hull so that, in the closed position thereof, the upper portions of the doors bear against the aforesaid longitudinal members and are thereby supported against pressure applied to the outer sides thereof, latch members pivoted to said longitudinal members and adapted to interlock with the doors to secure the latter in closed position and flexible load retaining elements adapted to be extended across the top of each compartment and connected between the longitudinal bulk head and the doors closing the outer sides of the compartments.

In witness whereof, we have hereunto set our hands.

WALTER M. BALFOUR.
GEORGE P. FISHER.