Feb. 10, 1970 H. SAUSE, JR 3,494,301

STANCHION

Filed Oct. 23, 1967

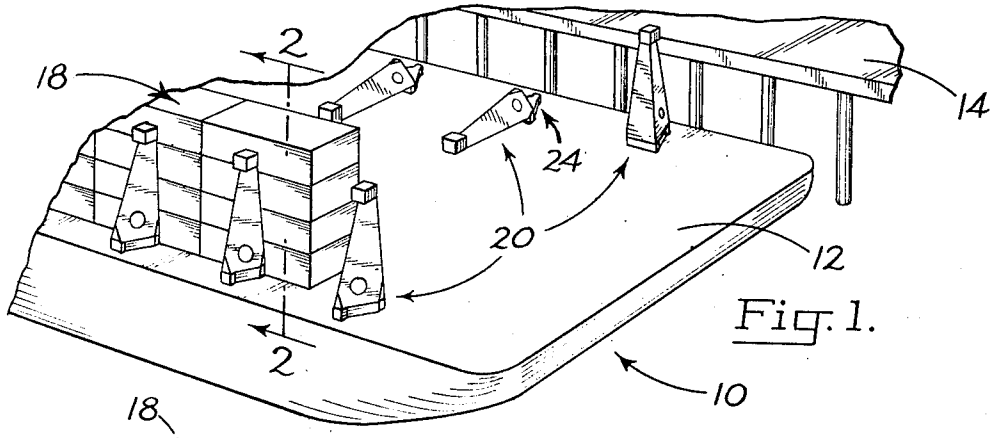


Fig. 1.

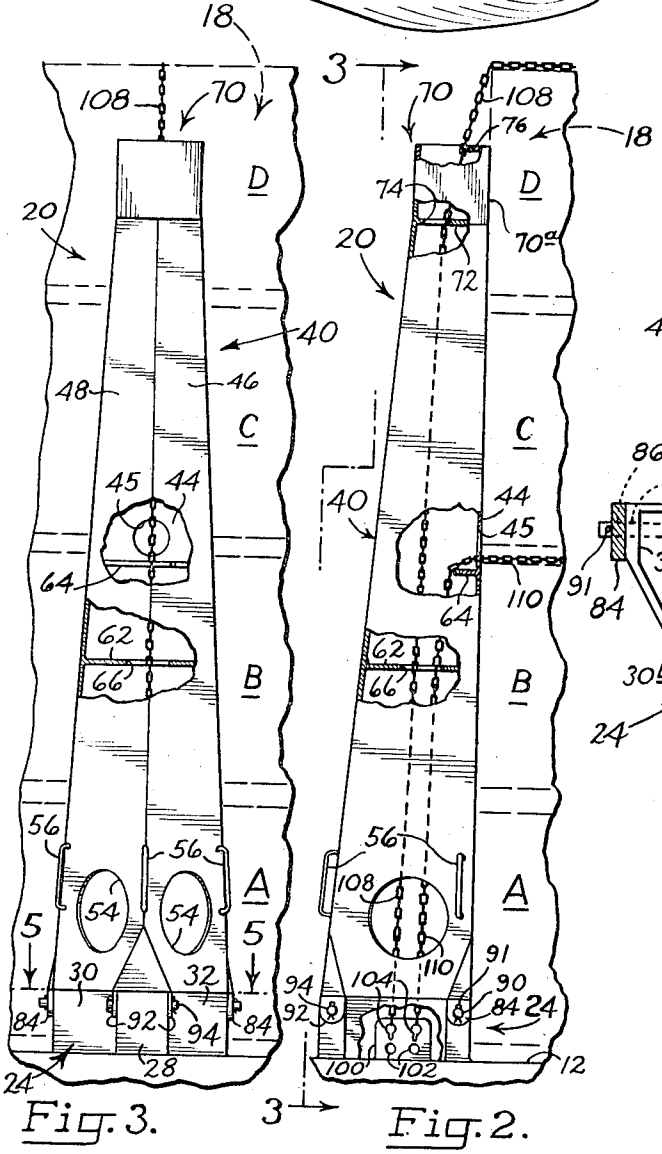


Fig. 3.

Fig. 2.

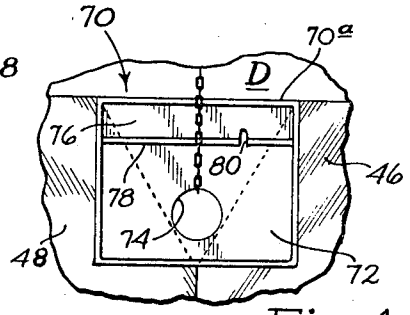


Fig. 4.

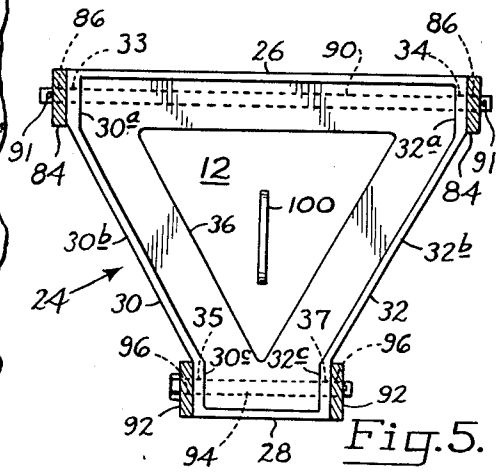


Fig. 5.

Henry Sause, Jr.
INVENTOR
BY Kolisch & Hartwell
Attys.

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STANCHION

Henry Sause, Jr., 3829 NE. Flanders, Portland, Oreg. 97232

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ABSTRACT OF THE DISCLOSURE

A stanchion to aid in securing a load on the deck of a cargo vessel. The stanchion includes a mounting secured to the deck, an upright column resting on the mounting, a pivotal connection between the column and mounting accommodating laying down of the column on the deck, and a removable locking pin spaced from the pivoted connection releasably securing the column in its upright position. The column has a hollow body through which a load-securing chain may extend, and a chain anchor is adjacent the base of the column for securing an end of such chain. A chain stowage box is adjacent the top of the column for stowing a collapsed expanse of chain.

This invention relates to a stanchion to aid in securing a load on a surface such as the deck of a barge or other vessel.

A general object of this invention is to provide a novel stanchion normally projecting upwardly from a support surface such as the deck of a cargo vessel, to aid in securing a load on the deck. The stanchion is easily released from its upright position, allowing it to be laid down to provide greater access to the deck on loading the vessel. Such positioning of the stanchion also reduces wind resistance on movement of the vessel with no load thereon.

More specifically, an object is to provide a stanchion which includes an elongated, upright column resting on and pivotally connected to a mounting secured to the deck, with the pivotal connection therebetween providing a substantially horizontal pivotal axis about which the column may be swung to lay it down.

Another object of the invention is to provide such a novel stanchion which may be removed easily from the vessel.

Still another object of the invention is to provide a stanchion to aid in securing a load on the deck of a vessel, which includes a hollow column through which a reach of a load-securing chain may extend. A chin anchor for securing an end of such chain is provided adjacent the base of the column, and an aperture is also provided through which the chain may extend out from the column.

A related object is the provision of a novel chain stowage box in the stanchion, for stowing a portion of such chain in a collapsed state.

Yet another object of the invention is to provide a novel stanchion which a side of the load carried on the deck of the vessel may be placed against, with the stanchion then providing support against side-shifting of the load.

These and other objects and advantages of the invention will become more fully apparent as the following description is read in conjunction with the accompanying drawings, wherein:

FIG. 1 is a perspective view of the bow of a cargo vessel with stanchion constructed in accordance with an embodiment of the invention disposed in rows along the port and starboard sides of the vessel;

FIG. 2 is an enlarged elevation view of a stanchion, taken generally along the line 2—2 in FIG. 1;

FIG. 3 is an elevation view of the stanchion of FIG. 2, taken generally along the line 3—3 in FIG. 2;

FIG. 4 is an enlarged top plan view of the stanchion, taken generally along the line 4—4 in FIG. 3; and

FIG. 5 is an enlarged cross-sectional view of the stanchion taken generally along the line 5—5 in FIG. 3 adjacent the base of the stanchion.

Referring now to the drawings, and first more particularly to FIG. 1, at **10** is indicated generally the bow section of a barge, also referred to as a cargo vessel, having a deck **12**. The barge is illustrated floating adjacent a dock **14** from which the barge may be loaded.

A portion of a load to be transported by the barge, such as stacks of lumber or plywood, is indicated generally at **18** stacked on the deck. Stanchions **20**, constructed in accordance with an embodiment of the invention, are disposed in opposing rows on the port and starboard sides of the deck on opposite sides of the midline of the barge. As is seen in FIGS. 1, 2, and 3, one side of load **18** is stacked in abutting contact with the stanchions.

Referring now to FIGS. 2, 3, and 5, each stanchion includes a base, or mounting, **24** which is supported on and secured to deck **12**. The base, when viewed from above, has the polygonal outline indicated in FIG. 5 and is secured to the deck with a flat side **26** facing inboard on the barge and substantially paralleling the longitudinal axis, or midline of the barge, and with a parallel, opposing, shorter side **28** facing outboard. Sides **30**, **32** of the base include end portions **30***a*, **32***a*, respectively, (which are disposed perpendicular to and join opposite ends of side **26**), central portions **30***b*, **32***b* (which are diagonal to sides **26**, **28**), and end portions **30***c*, **32***c* (which are perpendicular to and join opposite ends of side **28**). Sides **30**, **32** are also referred to herein as support means. An internal brace **36** having the generally triangular outline indicated in FIG. 5 is secured along its outer edges to the inner surfaces of the sides of the base.

End portions **30***a*, **32***a* have axially aligned holes **33**, **34** (shown in dotted outline in FIG. 5) extending therethrough at points spaced above the deck. The axes of these holes substantially parallel the deck and longitudinal axis of the barge. Similarly, end portions **30***c*, **32***c* have axially aligned holes **35**, **37** extending therethrough at points spaced above the deck.

Each stanchion further includes a hollow column, indicated generally at **40**, which is mounted on and projects upwardly from the base (see FIGS. 2 and 3). The column comprises an elongated hollow body having a substantially flat, vertically disposed face plate **44** forming the inboard side of the column which faces the midline of the vessel. An aperture **45** extends through the face plate at a point intermediate its ends. A pair of side plates **46**, **48** (see FIG. 3) are joined along their spaced-apart inboard edges to opposing edges of face plate **44**. These side plates extend in converging planes from their associated lines of joinder with face plate **44**, toward the outboard side of the barge, and are secured to each other along their outboard edges. Each of plates **44**, **46**, **48** has a greater dimension across its bottom than across its top, and thus the hollow body of the column tapers progressing upwardly from its bottom, to present the outline of a truncated pyramid. Side plates **44**, **46** rest on and are supported by side plates **30**, **32** of the base with the column in its upright position. Side plates **46**, **48** further have access holes **54** extending therethrough adjacent the bottom of the column. A series of hand-grip bars **56** are secured to the side plates about the column, at convenient elevations above the deck, to furnish handholds for workmen on the barge.

Horizontally disposed web members, such as those indicated at **62**, **64** in FIGS. 2 and 3, are secured to the inner surfaces of plates **44**, **46**, **48** to stiffen the column. As is seen in FIGS. 2 and 3, the web members either have apertures extending therethrough (such as that in-

dicated at **66** for web member **62**), or they extend only partially across the width of the column (as does web member **64**). In this way a passage is provided extending the length of and through the column, to accommodate reaches of chain used in securing a load.

Mounted on top of the truncated pyramid defined by plates **44**, **46**, **48** is a chain stowage box **70** (see FIGS. 2, 3, and 4). The chain stowage box is rectangular and has one vertically disposed side **70***a* which is aligned with face plate **44** to present a substantially flat inboard side for the stanchion throughout its length, as is best seen in FIG. 2. A horizontally disposed bottom plate **72** for the chain stowage box is secured to the top edges of plates **44**, **46**, **48**, and an aperture **74** extends through this bottom plate, providing a passage through which a reach of chain may pass from the chain stowage box into the hollow interior of the column. A cover plate **76** partially encloses the top of the chain stowage box, which cover plate is bounded along one edge by a rod **78**. A notch **80** may be cut through rod **78** and the cover plate, of such size as to receive a link of a chain turned on edge to provide a securing point for the chain. The chain stowage box is adapted to receive and store a reach of chain in its collapsed state, with the collapsed chain resting on bottom plate **72**.

Secured to the bottom of the column, adjacent its inboard side, are a pair of spaced-apart downwardly projecting pivot ears **84** (see FIGS. 2, 3, and 5). A pair of axially aligned holes **86** (seen in dotted outline in FIG. 5) extend through ears **84** with their axes substantially paralleling the longitudinal axis of the vessel. With the bottom of the column resting on base **24**, pivot ears **84** straddle end portions **30***a*, **32***a* of the base, and holes **86** through the pivot ears align with holes **33**, **34** in the base.

A rod **90** extends through aligned holes **33**, **34**, and **86**, and this rod provides a horizontal pivot axis substantially paralleling the longitudinal axis of the barge about which the column may pivot. The column may be laid down on the deck of the barge toward the midline of the barge by tipping it over, with pivoting about the axis provided by rod **90**. Two stanchions are shown in such a laid down position, in FIG. 1. Removable cotter pins **91** are inserted through holes in opposite ends of rod **90**, to limit relative axial movement of the rod in the holes.

Another pair of ears **92** are secured to and project downwardly from opposite sides of an outboard portion of the bottom of the column (see FIGS. 2, 3, and 5), and with the column in an upright position, these ears straddle end portions **30***c*, **32***c* of sides **30**, **32** of the base. A pair of axially aligned holes **96** (shown in dotted outline in FIG. 5) are provided through ears **92**, and with the column in an upright position, holes **96** align with holes **35**, **37** in the base. A pin **94**, also referred to as a locking means, is removably inserted through aligned holes **35**, **37**, and **96** to releasably secure the column in an upright position. The pin has an enlarged head at one end, and a cotter pin is inserted through a hole in its other end, to limit axial movement of the pin in the holes. Removal of pin **94** from the accommodating holes permits the column to be laid down on the deck.

As best seen in FIGS. 2 and 5, the base further includes a chain anchoring plate **100**, also referred to as chain securing means, secured to deck **12** in an upright position within the confines of the walls of base **24**. The chain anchoring plate has a pair of circular apertures **102** extending therethrough adjacent the deck, and a pair of keyhole-shaped apertures **104** extending therethrough above the circular apertures (see FIG. 2).

Referring still to FIG. 2, reaches of a pair of chains **108**, **110** extend through the hollow passage defined within the column. The lower end of chain **108** is secured to chain-anchoring plate **100**, by being extended through one of the circular apertures **102**, and thence upwardly and through one of keyhole apertures **104**. A link adjacent the end of the chain is turned on edge and fits within the smaller portion of the keyhole aperture to lock the end of the chain therein. The lower end of chain **110** is similarly secured to the chain anchor plate. Chain **108** extends upwardly from the chain anchoring plate through the entire length of the stanchion and is payed out through the top of chain stowage box **70** and over the top of load **18**. Chain **110** extends upwardly through a portion only of the stanchion, and projects outwardly from the column through aperture **45** to overlie a lower portion of load **18**.

Describing now the operation of the invention, with the column locked in an upright position, load **18**, including packages such as those indicated at A, B, C and D in FIGS. 2 and 3, are stacked on the deck of the barge against the flat, vertical, inboard surface of a stanchion. In stacking the load against the stanchion, packages A and B are first stacked one on top of the other on the deck to form a first tier, and a reach of chain **110** with its lower end secured to chain anchor **100** is extended across this first tier. Packages C and D are then placed on top of package B, forming a second tier, with a space being provided between packages B and C to accommodate movement of chain **110** therebetween. A reach of chain **108** with its lower end secured to chain anchor **100** is payed out of the chain stowage box at the top of the stanchion and extended to overlie package D.

Tiers similar to those formed by packages A, B, C and D are then formed across the deck of the barge until the space between an opposing pair of stanchions has been completely filled. Chains similar to those indicated at **108**, **110** are payed out from the stanchion on the opposing side of the barge and extended toward chains **108**, **110** to overlie similar tiers of packages adjacent the opposing stanchion. The opposing chains may be drawn together with a chain-tightening mechanism finally to secure the load. Chain-tightening mechanism which would be appropriate for this function is disclosed in U.S. Patent 3,120,370. With the organization contemplated, the stanchions serve not only to position the packages during loading, but form an integral part of the structure serving to hold the load down and in place.

When a chain such as that indicated at **108** is not being used to tie down the cargo on the deck, it may be stored in a collapsed state in the chain stowage box at the top of the column. To accomplish this a link in the chain is turned on edge and is fitted into notch **80** in the cover plate of the chain stowage box to secure the chain against being pulled by its own weight downwardly through the column. The slack expanse of chain extending outwardly from the notch is then collapsed and deposited on bottom plate **72** of the stowage box. Similarly, a chain such as that indicated at **110** which exits from the column through the aperture at the midregion of the column may be stowed within the stanchion by fitting one of its links edgewise in a notch provided in web member **64** and resting the slack expanse of chain extending outwardly from the notch in a collapsed state on web member **62**.

To provide greater access for loading from the dock to the deck of the barge, selected stanchions, which otherwise might extend above the elevation of the dock and impede the free flow of cargo, may be laid down on the deck, as indicated in FIG. 1. To lay down such a stanchion, pin **94** which locks the column to the base is removed. The column is then able to be pivoted about rod **90** adjacent its inboard side until it is laid down on the deck. The supporting forks on a lift truck or the line from a crane used in loading the barge may be used to ease the descent of the column toward the deck. When it is desired to raise the column to an upright position, the forks of a lift truck may be inserted under the column (or a line from a crane may be connected to its upper end) with the column then being raised to an upright position by raising such forks (or raising the line of the crane).

It should be noted that with the deck of the vessel unloaded all stanchions on the vessel may be laid down to decrease wind resistance on moving the vessel. As a consequence, greater control may be exercised over the vessel, and fuel economies are possible.

It will also be noted that the locking pin and pivot rod in each stanchion securing the column to the base may act as shear pins should the load carried on the deck exert excessive forces laterally against the stanchion. The locking pin and the rod may thus be designed to fail and release the column and load prior to damage occurring to deck and hull structure.

If it should become necessary to replace a column, complete removal of such column from its associated base is accomplished simply by removing the locking pin and pivot rod which connect the column to the base.

While an embodiment of the invention has been described herein, it is not intended to be specifically limited to the structure disclosed.

It is claimed and desired to secure by Letters Patent:

1. In combination with a vessel having a deck with margins of the deck adjacent opposite sides of the vessel and on opposite sides of the midline of the vessel, a stanchion comprising a column disposed adjacent a margin of said deck having an upright position and bounded in this position by a substantially vertical inboard side which faces the midline of the vessel, pivot means adjacent said inboard side fixed against axial displacement on the column and pivotally interconnecting the base of the column to said deck, support means for the base of the column which the column rests upon in its said upright position, said pivot means accommodating inboard swinging of the column toward the midline of the vessel with the base of the column swinging from said support means about said pivot axis, and locking means disposed outwardly toward the side of the vessel from said pivot means releasably securing the column in its said upright position with the base of the column resting on said support means.

2. The combination of claim 1, wherein said column is hollow with a passage extending through the length of the column, and which further comprises a chain having a reach which extends through said passage, means adjacent the top of the column for paying out said chain with such extending inboard of the vessel, and anchoring means fixed to the deck of the vessel adjacent the base of the column having an end of the chain secured thereto.

3. In combination with a deck, a stanchion comprising

a column mounted on and in a position projecting upwardly from the deck and having a passage extending through its length,

a mounting for the bottom of the column comprising pivot means interconnecting the column to the deck accommodating laying down of the column from said upwardly projecting position,

locking means releasably securing said column in said upwardly projecting position,

a chain having a reach which extends through said passage in the column,

anchoring means adjacent the bottom of the column having an end of the chain secured thereto, and

a chain stowage box adjacent the upper end of the column adapted to receive and for stowing an expanse of said chain in a collapsed state.

4. The combination of claim 3, which further comprises a second chain having a reach which extends through a portion of said passage in the column with an end of said second chain secured to said anchoring means and wherein the column has an aperture extending through a side wall of said column intermediate said chain stowage box and the bottom of the column which permits extending said second chain out from said passage to the exterior of said column.

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