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Grove et al.

[11] **3,885,689**

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[54] **BOAT LOADING AND UNLOADING APPARATUS**

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[52] **U.S. Cl.** **214/450**
[51] **Int. Cl.** **B60p 3/10**
[58] **Field of Search** ..... 214/450; 224/42.1 H

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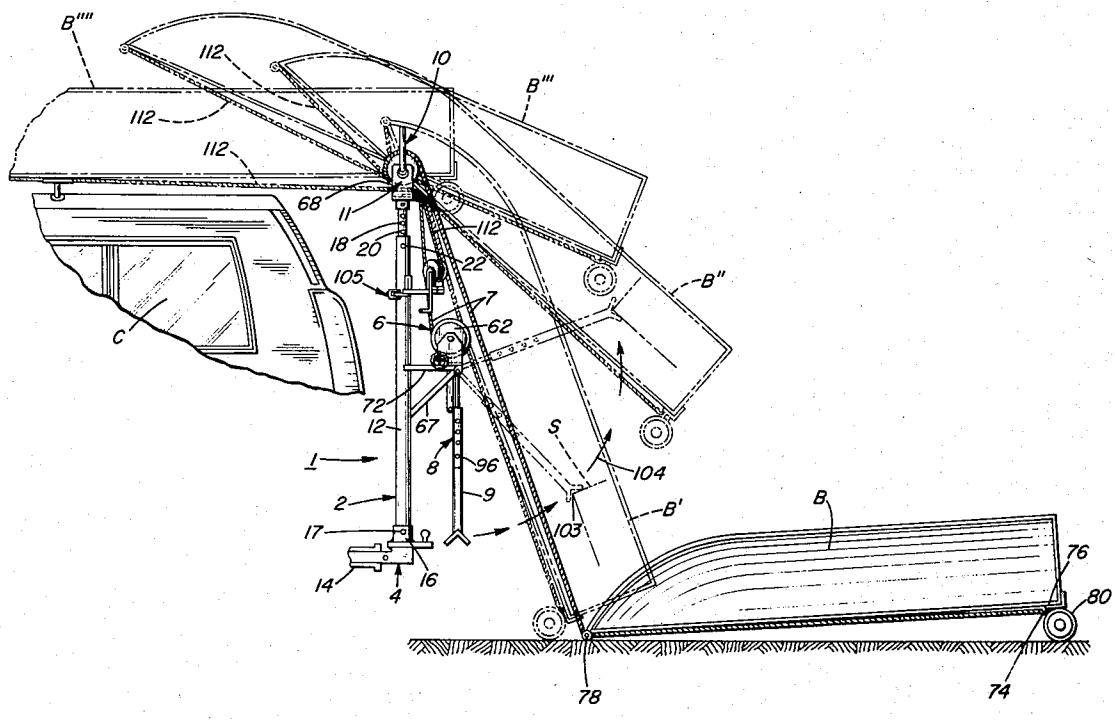
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Primary Examiner—Stanley H. Tollberg
Assistant Examiner—John P. Shannon
Attorney, Agent, or Firm—Teare, Teare & Sammon

[57] **ABSTRACT**

An apparatus for loading and unloading a boat onto and off of a carrier, and which includes a stand adapted for mounting on the carrier having a loading winch mechanism for retracting a loading line detachably connected to the boat's stern for raising the boat bow first from the ground into a generally vertically-oriented position. A guide assembly movingly supports the boat's bow after reaching a predetermined raised, vertical position, and a booster assembly is selectively engageable with the boat's stern to then pivot the boat toward a generally horizontal position. The guide assembly supports the boat, when in a horizontal position, for movement in a forward direction into the loaded position on the carrier. An unloading winch assembly retracts an unloading line detachably connected to the bow for moving the boat rearwardly while the stern is connected to the loading line to unload the boat. The loading winch assembly includes a brake assembly which retards paying out of the loading line against the force of gravity on the boat for easing the boat onto the ground. The booster assembly is re-engageable with the stern of the boat during the unloading operation to further facilitate easing the boat onto the ground.

14 Claims, 6 Drawing Figures



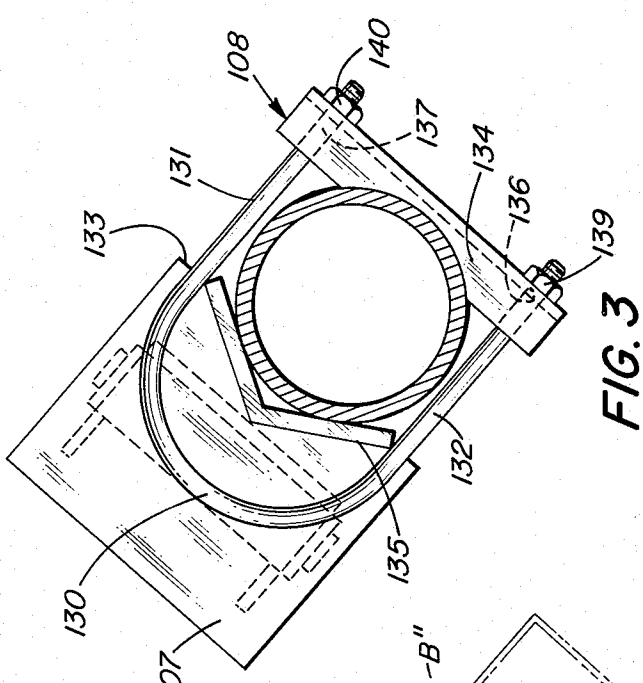

108
140
137
134
136
139
131
133
132
135
130
107

FIG. 3

76
80
74
B
B''
B'
104
78
S
103
B'''
112
22
7
62
96
9
10
8
67
16
4
6
72
12
2
1
11
18
20
105
68
17
14
112
112
112
C
B''''

FIG. 1

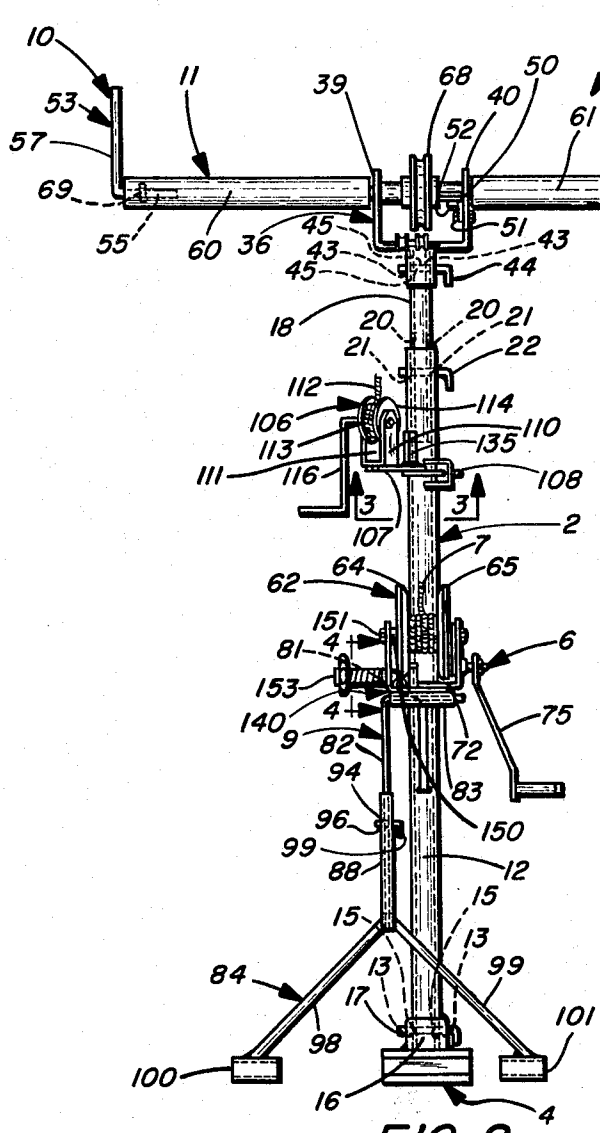


FIG. 2

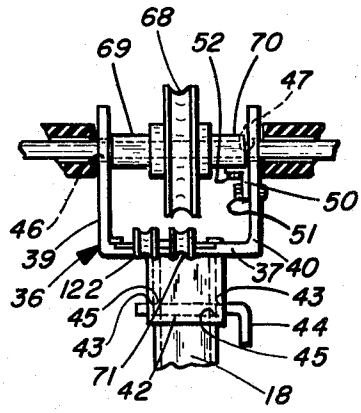


FIG. 6

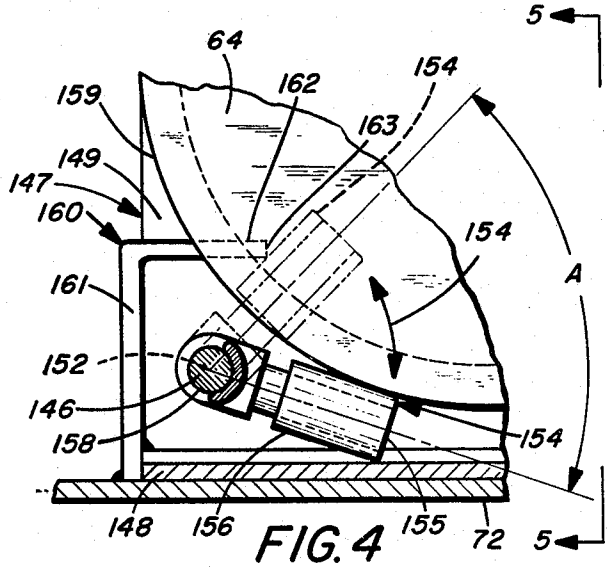


FIG. 4

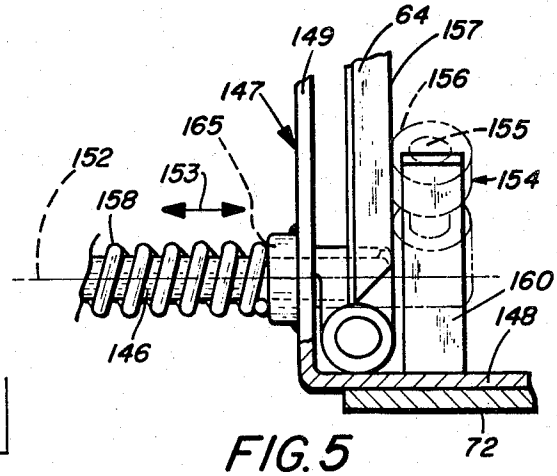


FIG. 5

BOAT LOADING AND UNLOADING APPARATUS

BACKGROUND OF THE INVENTION

The present invention is directed to an improved boat loading and unloading apparatus for facilitating the loading and unloading of a boat from and to a position on the ground onto and off of a carrier, such as a car, truck, trailer or the like.

Heretofore, numerous boat loading and unloading apparatuses have been known which have enabled one person to move a boat from a position on the ground onto a carrier, and vice versa. These prior devices are not considered to be entirely satisfactory in that the boat is often in a position where it would be virtually unmanageable and not easily maneuverable should the device become inoperative for one reason or another. On the other hand, those devices which avoid such positioning of the boat are very complicated structurally and require considerable preliminary effort and preparation prior to the loading operation and after the unloading operation.

SUMMARY OF THE INVENTION

The present invention contemplates providing a novel boat loading and unloading apparatus which includes a support stand adapted for detachable mounting on a carrier, such as a car, truck, trailer, or the like. A loading winch mechanism is mounted on the support and includes a retractable loading element, such as a rope or the like, which has its distal end adapted for detachable connection to one end, such as the stern, of the boat. The loading element extends in the lengthwise direction of the boat from the stern toward the opposite end, such as the bow, and is detachably connected inwardly from its distal end to the bow such that, when the loading element is retracted by the winch mechanism, the bow of the boat will be elevated prior to elevation of the stern. A fulcrum-like guide assembly is mounted on the support stand adjacent its upper end for engaging the bow of the boat after the boat reaches a predetermined elevated position and the boat is in a generally vertically-oriented position. A booster assembly is provided on the support stand for selectively engaging the stern of the boat and elevate the stern so as to position the boat in a generally horizontally-oriented position. More particularly, the booster assembly includes a booster bar which is pivotally connected to the stand and is engageable toward the stern of the boat, such as with a rear seat, for pivoting the boat about the fulcrum of the guide assembly. The guide assembly includes a roller assembly having rollers which are engageable with the boat such that the boat may be rolled and pivoted therealong in a generally forward direction toward and onto the carrier upon continued retraction of the loading element. The booster bar is arranged for disengagement from the boat when the center of gravity of the boat moves beyond the fulcrum of the guide assembly and the boat lowers, by gravity, onto the carrier. An unloading winch is also supported on the support stand and includes an unloading element which is arranged for detachable connection to the bow end of the boat to move the boat rearwardly from its loaded position on the carrier upon retraction thereof. The loading winch assembly also includes a selectively actuatable brake assembly which coacts with the loading line to retard paying out thereof against the force of gravity on the boat, and thus, control the descent of the boat from the carrier onto the ground. The booster assembly is re-engageable with the stern end of the boat during the unloading operation prior to a major portion of the weight of the boat passing beyond the fulcrum of the guide assembly acts against the weight of the boat to reduce the braking force required on the loading line to ease the boat onto the ground.

From the foregoing, it can be seen that the apparatus of the present invention is of a relatively simple construction, but which is capable of controlling the transfer of the weight of the boat such that at any position during the loading or unloading operation, it can be easily maneuvered and handled by one person. Still further, the construction of the apparatus is such that the boat is never in a position where its size and weight would be uncontrollable by such person should, for one reason or another, the apparatus becomes inoperative.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a fragmentary, side elevation view of the boat loading and unloading apparatus of the present invention showing the apparatus in **3** stages of the loading or unloading operation; and

FIG. **2** is a rear elevation view of the boat loading and unloading apparatus of FIG. **1.**

FIG. **3** is a transverse section view taken along the lines **3—3** of FIG. **2**;

FIG. **4** is an enlarged, fragmentary, transverse section view taken along the lines **4—4** of FIG. **2**; and

FIG. **5** is an elevation view taken along the lines **5—5** of FIG. **4.**

FIG. **6** is an enlarged fragmentary, partially in section view of a portion of FIG. **2.**

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIG. **1**, the boat loading apparatus of the present invention is illustrated, generally at **1**, in FIG. **1**, which shows a boat B at sequential stages of being loaded and unloaded onto and off of a carrier C, such as a car or the like. As shown, the apparatus **1** includes a stand **2** which is adapted at its lower end for detachable mounting on the carrier C, such as by a hitch assembly **4.** A winch mechanism **6** is supported on the stand **2** and includes a flexible loading element **7**, such as a rope or the like, adapted for detachable connection to the stern of the boat B for lifting the boat from a position on the ground, such as indicated by the solid lines at B. More particularly, the winch mechanism **6** retracts the loading element **7** to raise the boat, bow first, in a manner to be described more fully hereinafter, to a predetermined, generally vertically-oriented position, such as indicated by the phantom lines at B′, such that the stern of the boat is supported on the ground, and the bow of the boat is resting against the stand **2.** A selectively engageable booster assembly **8** is mounted on the stand **2** and includes a rigid booster member **9** which is supported at one end on the stand **2** and adapted at its other end for selective engagement with the stern of the boat B when the boat is in the aforementioned vertical position. By this arrangement, continued actuation of the winch mechanism **6** will cause the stern end of the boat B to be lifted upwardly and outwardly away from the stand to move the boat B toward a generally horizontally-oriented position, such as indicated by the phantom lines at B″. A guide assembly **10** is supported adjacent the upper end

of the stand 2 and includes a roller assembly 11 for rollingly supporting the boat B thereon and which acts as a fulcrum about which the boat pivots as it moves upwardly and forwardly from the vertical position at B' to the horizontal position at B'' upon continued retraction of the loading element. The booster member 9 remains in engagement with the boat until a major portion of the weight of the boat has passed beyond the roller assembly, such as indicated by the phantom lines at B''', to cause the bow to lower, by gravity, onto the carrier C to a generally horizontal position. The roller assembly 11 also facilitated continued rolling movement of the boat after it has reached the horizontal position, in a forward direction on the roller assembly 11 into the loaded position on the carrier C, as at B''''.

The stand 2 may be made of any suitable rigid material, such as steel or the like, and as shown in FIG. 1, includes a generally upright main mast 12 which is detachably mounted on the hitch assembly 4 which is adapted for rigidly mounting the stand 2 on the carrier C, such as the bumper 14, thereof. As shown, the hitch assembly 14 includes an upwardly opening, quick-disconnect receptacle or socket 16 which telescopically receives one end, such as the lower end, of the mast 12. Both the socket 16 and the lower end of the main mast 12 may be provided with a pair of oppositely-disposed, axially aligned apertures, as at 13 and 15 respectively, adapted to be disposed in aligned registration with one another in the installed position of the mast 12 within the socket 16. A pin 17 is provided for insertion through the apertures 13 and 15 for securing the main mast 12 within the socket 16.

The main mast 12 is preferably of a hollow tubular construction, such as cylindrical, being adapted adjacent its upper end to receive an upper mast 18 in telescopic relation therein. The upper mast 18 is preferably of the same configuration as the main mast 12, and is provided with a series of pairs of oppositely-disposed, axially aligned apertures, as at 20, which is laterally spaced in lengthwise direction thereof. The apertures 20 are disposed adjacent the lower end of the upper mast 18 and are adapted for registration with a pair of oppositely disposed, axially aligned openings 21 (FIG. 2) located adjacent the upper end of the main mast 12. A pin 22 may be slidably inserted within the selected one of the pairs of apertures 20 and the pair of openings 21 for locking the upper mast 18 at the selected position within the main mast 12 for adjusting the height of the stand 2.

The guide assembly 10 includes a cross bar 34 which extends in a generally horizontal direction when the stand 2 is in the mounted position on the carrier C. In the form shown, the cross bar 34 is formed from a cylindrical tube, and is supported adjacent the upper end of the upper mast 18, such as by a bracket 36. As seen best in FIG. 6, the bracket 36 is shown as being generally U-shaped in configuration when viewed in rear elevation, as seen in FIG. 2, and includes a base 37 and a pair of spaced, oppositely-disposed flanges 39 and 40 which extend upwardly from the base 37. A downwardly opening receptacle 42 is secured, such as by welding or the like, to the under side of the base 37, being adapted to receive the upper end of the upper mast 18 in telescopic relation therein. The receptacle 42 and the upper end of the upper mast 18 are each provided with oppositely-disposed, axially-aligned apertures, as at 43 and 45, respectively, adapted for alignment with one another in the installed position of the upper mast within the receptacle 42 to receive a pin 44 for detachably securing the bracket 36 to the upper mast 18.

As further shown in FIG. 6, the cross bar 34 may be secured to the bracket 36 in any suitable manner, and in the form shown, extends through openings 46 and 47 in the flanges 39 and 40 respectively. The cross bar 34 is secured against rotation within the openings 46 and 47 by a right angle fastener member 50 which includes one downwardly depending leg which is connected, such as by screw 51, to the flange 40 and another generally horizontally extending leg which is connected, such as by a screw 52, to the cross bar 34. Referring now to FIG. 2, the cross bar 34 also includes adjacent its outer ends generally upwardly extending posts 53 and 54 which are disposed outwardly from the flanges 39 and 40. The posts 53 and 54 are shown in the form of oppositely disposed, right angle bars, each having one end, such as at 55 and 56, disposed in generally axially aligned relation with one another within the opposite ends of the cross bar 34 and their opposite ends 57 and 58 extending generally parallel to one another and projecting upwardly from the bar 34. The posts 53 and 54 may be secured in the aforesaid position by pins 69 and 70 which extend through the cross-bar 34, as well as through ends 55 and 56 of the posts 53 and 54, respectively. The posts 53 and 54 serve as abutments for engaging the opposite sides of the boat B as it moves along the roller assembly 11 to guide the boat in its lengthwise direction onto and off of the carrier C.

The roller assembly 11 includes a pair of roller members 60 and 61 which are mounted for rotation adjacent the opposite ends of the cross bar 34 between the flanges 39 and 40 and the post 53 and 54. As shown, the roller members 60 and 61 are disposed circumferentially in loose fitted relation on the cross bar 34 to enable rotational movement thereof about the longitudinal central axis of the cross bar 34 and thereby allow rotation thereof when engaged by the gunnels of the boat as the latter moves relative to the stand 2.

Referring now again to FIGS. 1 and 2, the winch mechanism 6 includes a drum 62 on which the rope 7 is wrapped. The drum 62 includes a pair of oppositely-disposed side plates 64 and 65, for holding the rope 7 thereon. The drum 62 is supported for rotation on a shelf 72, and a crank arm 75 is connected to the drum 62 for rotating it about a generally horizontal axis. The shelf 72 projects rearwardly and outwardly from the mast 12 and may be secured to the mast 12 in any suitable manner. In the form shown, it is welded at its inner edge to the main mast 12 and has its outer edge remote from the mast 12 supported by a brace 67 which may also be welded at its lowr end to the main mast 12 and at its upper end to the shelf 72.

The guide assembly 10 also includes a locating pulley 68 which is rotatably mounted on the cross bar 34 between the flanges 39 and 40 for rotation about a generally horizontal axis as shown in FIGS. 2 and 6. The pulley 68 is maintained in a generally centrally located position between the flange 39 and 40 by spacer members 69 and 70 which are disposed on opposite sides of the pulley 68 and inwardly of the flanges 39 and 40. The pulley 68 is horizontally aligned above the drum 62 such that, when the rope 7 leaves the drum, it will move in a plane which is generally parallel to the rotational plane of the pulley 68. A routing pulley 71 is mounted

for rotation adjacent the edge of the base **37** toward the bracket **36** to receive the rope **7** from the drum **62** so that the rope **7** will not scrape on the base **37** as it moves from the drum **62** onto the pulley **68.**

As aforesaid, the rope **7** is wrapped about the drum **62** and extends upwardly into engagement with the pulley **68** and then is wrapped about the pulley so as to extend downwardly toward the ground. The rope **7** includes a hook **74** adjacent its free distal end which is adapted for detachable connection to a ring **76** which is mounted adjacent the stern of the boat B. The boat B is equipped with a guide member **78,** such as a pulley U-clip or the like, which is disposed adjacent its bow end about which the rope **7** is inserted after being extended rearwardly for connection to the ring **76.** A dolly or roller **80** is mounted adjacent the stern of the boat being adapted for rolling engagement along the ground. By this arrangement, cranking of the crank arm **75** to retract the rope **7** will simultaneously cause the bow of the boat to be lifted from the ground and the entire boat to be rolled forwardly along the ground on the dolly **80** until the boat B reaches a predetermined, generally vertically-oriented position as indicated at B'. Just prior to the boat reaching the position at B', the guide pulley **78** will be pulled up to and past the guide pulley **68.** As the pulley **78** passes the pulley **68,** the rope **7** is pulled out of engagement therewith as it is wrapped about the pulley **68.** As this occurs, the boat will fall forwardly until its gunnels contact the rollers **60** and **61.** After the boat B has reached the position at B', the booster member **9** is selectively engaged therewith.

As shown, the booster member **9** comprises an elongated arm **82** which is pivotally connected to the plate **72** at one end and supports a boat engaging member **84** at its other end. In the form shown in FIG. **2,** the arm **82** is bent at its one end, such as at **81,** such that the bent end **81** extends generally perpendicular to the longitudinal central axis of the arm **82.** As shown, the bent end **81** is slidably disposed within a sleeve **83** which is secured, such as by welding or the like, to the outer edge of the plate **72** or the edge remote from the main mast **12.** As shown, the sleeve **83** and the longitudinal axis of the bent end **81** have their lengthwise axis extending in a generally horizontal direction so as to enable free end of the arm **82** to swing in a generally vertical plane, outwardly and upwardly away from the main mast **12.**

The boat engaging member **84** is shown as being generally inverted Y-shaped as seen in rear elevation in FIG. **2** when in the non-engaged position. As shown, the boat engaging member **84** includes a stem portion **88** which is of a cylindrical hollow construction and is adapted at one end to slidably receive the free end of the arm **82** in sliding relation therein. The stem portion **88** may include a series of apertures, as at **96,** which are disposed in laterally spaced relation along the length thereof and which are adapted to be aligned with an aperture, as at **94,** in the arm **82** to enable adjustment of the overall length of the booster member **9** to compensate for boats of different size and construction. A pin **99** is provided which is slidably received within a respective one of the apertures **96** and the aperture **94** for securing the boat engaging member **84** in fixed relation with respect to the arm **82.** A pair of arms **98** and **99** extend outwardly in angular relation from the end of the stem portion **88** remote from the end connected to the arm **82.** Each of the arms **98** and **99** include cradle-like receptacles **100** and **101** mounted in spaced relation adjacent the outer distal ends of the arms **98** and **99,** respectively, for releasably receiving a part of the boat, such as the corner of the seat S, as at **103** in FIG. **1.** In the form shown, the receptacles **100** and **101** are provided in the form of outwardly opening, right angle bar sections which may be secured to the outer ends of the arms **98** and **99,** such as by welding or the like. By this arrangement, when the boat reaches the predetermined vertical position, the booster member **9** is pivoted outwardly and the boat is manipulated until the seat corner is fitted within the receptacles **100** and **101.** By having the receptacles disposed in spaced relation from one another, they each will engage a laterally spaced portion of the boat seat and thus prevent tipping of the boat as it is lifted off of the ground.

Upon continued retraction of the rope **7,** the boat is pulled upwardly, and the booster member **9** is forced to swing outwardly causing the stern of the boat to swing upwardly and outwardly away from the stand **2.** At the same time, the boat will be rolling upwardly on the rollers **60** and **61** and will be pivoted about the rotational axis thereof. The receptacles **100** and **101** of the booster member **9** will swing through an arcuate path, such as indicated by the arrows at **104,** and will remain in engagement with the boat seats until a major portion of the boat passes beyond the rollers **60** and **61** which causes the bow of the boat to fall, by gravity, downwardly onto the carrier C. As this occurs, as indicated at B''', the stern of the boat is lifted out of the arcuate path of travel of the receptacles **100** and **101** to cause the seat S to be disengaged therefrom. Upon disengagement of the receptacles **100** and **101** the booster member **9** will swing freely, by gravity, downwardly to its inactive non-engaged position. Continued retraction of the rope **7,** will pull the boat forwardly along the rollers into the loaded position at B''''.

Referring again to FIGS. **1** and **2,** an unloading mechanism **105** is provided to unload the boat B from the position indicated at B'''' in FIG. **1.** As shown, the unloading winch mechanism **105** includes a drum **106** which is mounted on a platform or shelf **107** which projects outwardly from the main mast **12.** The shelf **107** is secured to the main mast **12** by clamping assembly **108** which will be described in more detail hereinafter. The drum **106** is supported for rotation between generally upright arms **110** and **111** for rotation about a generally horizontal axis. A flexible unloading element **112,** such as a rope or the like, is disposed in wrapped relation on the drum **106,** and is retained between side plates **113** and **114.** The drum **106** includes a crank arm for rotating the drum about its rotational axis in one direction to unwrap the unloading element **112** and in the opposite direction for retracting the unloading element **112.** Conventionally, one end of the unloading element may be secured to the drum **106,** having the other end free for detachable connection to the boats bow. Preferably, a hook is connected adjacent the free end of the unloading element at one end for detachable connection to the guide pulley **78.** As shown in FIGS. **1** and **2,** a routing pulley **122** is mounted on the base **37** of the brackets **36.** As shown, the routing pulley has its rotational axis disposed in axial alignment with the rotational axis of the routing pulley **71** and is positioned between the routing pulley **71** and the arm **39** of the bracket **36,** being adapted to

route the unloading element **112** over the bracket **36** and under the arm **34** so that it may be extended forwardly for detachable connection with the pulley **78** at the bow of the boat B. By this arrangement, cranking of the crank arm **116** in a direction to retract the unloading element will cause the boat to be puled rearwardly along the rollers **60** and **61** and off of the carrier C.

As shown in FIG. **3**, the clamping assembly **108** includes a generally U-shaped bolt which has its bight portion **130** secured, such as by welding or the like, to the underside of the shelf **107**. Further, the bolt includes legs **131** and **132** which project outwardly beyond one edge **133** of the shelf **107**. In the installed position, the shelf **107** is disposed on one side of the main mast **12** and a clamping bar **134** is disposed on the opposite side thereof. The legs **131** and **132** extend along opposite sides of the main mast **12** and project beyond the side of the main mast **12** remote from the shelf **107**, being adapted to be received through apertures **136** and **137** in the clamping bar **134**. Nuts **139** and **140** are threadably secured to the ends of the legs **131** and **132** which project through and beyond the clamping bar **134**, being adapted to draw the shelf **107** and clamping bar **134** into clamping engagement with the main mast **12** upon tightening thereof. The shelf **107** may be provided with a generally V-shaped notch in which there is disposed, such as by welding or the like, a complimentary V-shaped plate section **135** which projects upwardly from the shelf **107**, as shown in FIG. **2**, to provide an increased abutting surface area for more rigidly holding the shelf **107** in position on the main mast **12**.

Referring now to FIGS. **2**, **4** and **5**, a braking assembly **140** is provided to control the movement of the boat B from the loaded position at B''' to the unloaded position at B in FIG. **1**. Referring now particularly to FIGS. **4** and **5**, the braking assembly **140** includes an actuating shaft **146** which is mounted on a bracket **147** on the shelf **72**. The bracket **147** includes a generally horizontally extending leg **148** which is secured, such as by welding or the like, to the shelf **72** and an upright generally vertically-extending leg **149** which projects upwardly from the outer end of the leg **148**, being fastened to the axle **150** of the drum **62**, such as by a nut **151** or the like. An actuating shaft **146** extends through a bushing **165** on the arm **149** being disposed for reciprocating sliding movement in an axial direction along its lengthwise axis **152**, such as indicated by the arrows at **153** in FIG. **5**, and for oscillating rotatable movement about its axis **152**, such as indicated by the arrows at **154**. A knob **153** (FIG. **2**) is mounted on the shaft **146** outwardly of leg **149** to fascilitate sliding and rotating movement of the shaft **146**, as will be described hereinafter. A braking arm **154** is disposed adjacent the inner end of the shaft **146** and is formed by bending the inner end, such as **155**, of the shaft **146** perpendicular to the rotational axis thereof. As shown, a brake lining **156** is disposed circumferentially about the inner end **155**, being adapted for braking engagement with the inner surface **157** of the sidewall **64** of the drum **62**, as will be described more fully hereinafter. In the form shown, the brake lining **156** is provided in the form of the resilient material, such as rubber or the like, which deforms upon engagement with the inner surface **157** and provides gripping contact therewith.

A helical spring **158** is disposed circumferentially about the shaft **146** and is biased between the bushing and the knob **153** so as to urge the shaft **146** outwardly, and thus, force the brake lining **156** against the inner surface **157** of the sidewall **64**. On the other hand, by pushing the shaft **146** in the opposite direction to compress the spring **158**, the brake lining **156** is moved out of contact with the inner surface **157** to enable rotation of the shaft downwardly into engagement with the leg **148** of the bracket **147**.

Referring now to FIG. **4**, an abutment arm **160** is mounted on the shelf **72**, being adapted to limit the rotational movement of the shaft **146** and position the braking arm **154** in the raised, optimum braking position as indicated by the phantom lines **154**. As shown, the abutment arm **160** includes an upright, generally vertically extending portion **161** which is secured, such as by welding or the like, at its lower end to the shelf **72**. The abutment arm **160** further includes a generally horizontally-extending portion **162** which projects inwardly from the upright portion **161** in overlying relation with respect to the shaft **146**, having its inner distal end **163** disposed for abuting engagement with the braking arm **154**, and thus, position the lengthwise dimension of the breaking arm **154** in generally radially extending relation with respect to the sidewall **64** to maximize the braking action when in contact therewith. As further shown in FIG. **4**, the rotational axis **152** of the shaft **146** is positioned outwardly of the peripheral edge **159** of the side wall a sufficient distance such that the diameter of the outer distal end of the brake arm **154** is less than the corresponding transverse distance between the outer periphery **159** of the side wall **64** and the confronting surface of the horizontally extending arm **148** of the bracket **147**. Thus, when the shaft **146** is rotated to move the brake arm **154** to the lowered position against the arm **148**, the spring **158** will urge the shaft **146** outwardly and cause the brake arm **154** to move under the outer peripheral edge **159** of the side wall **64** into the non-braking position against the leg **149**, as indicated by the solid lines at **154** in FIGS. **4** and **5**.

By this arrangement, the rope **112** is retracted until the weight of the boat is balanced on the rollers **60** and **61**, and more particularly, until a major portion of the boat's weight is positioned just forwardly of the rollers **60** and **61** so that the stern of the boat does not begin to fall, by gravity, downwardly toward the ground. When the boat is in this position, the brake assembly **140** is engaged with the drum **62**. The stern of the boat is then manually lowered to position the corner of the seat **5** in the path of movement of the booster member **9**. The booster member **9** is then manually swung upward, and the seat corner is fitted into the receptacles **100** and **101**. Preferably, the braking force of the braking arm **154** on the drum **64** is sufficient to hold the boat in this intermediate lowered position so that the boat's stern will not lower, by gravity, to the ground. The rope **7** is then manually unwrapped to lower the boat toward the ground against the braking force of the braking arm **154** acting on the drum **62**. When the boat has reached the position at B', the unloading rope **112** is disconnected from the guide pulley **78**, and then the braking arm **154** is disengaged from the drum **62** to allow the boat to be lowered by its own weight from the position at B' to the position at B on the ground. The lowering rate is manually controlled by means of the crank-arm **75** to control rotation of the drum **62** and unwrapping of the loading rope **7**.

We claim:

1. An apparatus for loading a boat onto a carrier comprising,
a support,
winch means on said support including a retractable loading element for lifting said boat off of the ground,
fulcrum means on said support for movingly supporting said boat thereon,
means for connecting the distal end of said loading element to one end of said boat for lifting said boat by said winch means,
releasable guide means releasably connecting the opposite end of said boat to said loading element inwardly from the distal end of said loading element for lifting the opposite end of said boat into engagement with said fulcrum means,
said guide means includes a guide receptacle for releasing said opposite end of said boat from said loading element after engagement of said opposite end of said boat with said fulcrum means to enable said boat to be moved upwardly and along said fulcrum means by said loading element upon continued actuation of said winch means,
booster means of said support selectively engaging said boat adjacent said one end after said opposite end has been moved into engagement with said fulcrum means, and
said booster means coacts with said fulcrum guide means to pivot said boat from said generally vertical position into a generally horizontal position upon continued actuation of said winch means for placement of said boat in a generally horizontal position on said carrier.

2. An apparatus in accordance with claim 1, wherein said support includes hitch means for mounting said apparatus on said carrier.

3. An apparatus in accordance with claim 1, wherein said support comprises an upright stand.

4. An apparatus in accordance with claim 1, wherein said loading element comprises a rope.

5. An apparatus in accordance with claim 1, wherein said winch means comprises a rotatable drum on said support for retracting said loading element.

6. An apparatus in accordance with claim 5, wherein said winch means includes pulley means having at least one pulley mounted on said support above said drum, and
said loading element is wrapped around said pulley for elevating said boat above said carrier.

7. An apparatus in accordance with claim 1, wherein said booster means includes a booster bar swingably connected at one end to said support, and
said booster bar includes a receptacle which opens in a direction outwardly from its connected end for releasably engaging said boat adjacent its one end for moving said one end outwardly from said support and upwardly from the ground to position said boat from said vertical position to a generally horizontal position and move said boat along said fulcrum means upon continued actuation of said winch means for placement on said carrier.

8. An apparatus in accordance with claim 1, wherein said releasable guide means includes a rotatable pulley on said support adjacent said fulcrum guide means having said loading element wrapped on and off thereof upon actuation of said winch means, and
said guide receptacle opens in a direction toward said pulley to enable withdrawal of said loading element from said guide receptacle when said guide receptacle is adjacent said pulley to release said opposite end of said boat from engagement with said loading element.

9. An apparatus in accordance with claim 1, wherein said fulcrum means includes a roller assembly for rollingly engaging the gunnels of said boat upon release from said loading element to facilitate movement of said boat relative to said support and onto said carrier.

10. An apparatus in accordance with claim 3, including
brake means on said stand to resist the movement of said boat toward the unloaded position.

11. An apparatus in accordance with claim 10, wherein
said brake means includes a selectively actuable brake arm engageable with said winch means to control the rate of movement of said boat toward the unloaded position.

12. An apparatus for loading a boat onto a carrier comprising,
a support,
winch means on the support including a retractable loading element having its distal end detachably connectable to one end of said boat,
said loading element being detachably connectable inwardly from its distal end to the opposite end of said boat,
fulcrum guide means on said support for movingly supporting said opposite end of said boat when elevated to a generally vertical position,
booster means on said support for selective engagement with said one end of said boat after elevating said opposite end of said boat,
said booster means coacting with said fulcrum guide means to pivot said boat into a generally horizontal position for placement on said carrier, and
said booster means includes a booster bar swingably connected at one end to said support, and
selectively engageable means adjacent the opposite end of said bar for engaging said boat toward its one end and lifting said one end to position said boat in a generally horizontal position.

13. An apparatus for loading a boat onto a carrier comprising,
a support,
winch means on the support including a retractable loading element having its distal end detachably connectable to one end of said boat,
said loading element being detachably connectable inwardly from its distal end to the opposite end of said boat,
fulcrum guide means on said support for movingly supporting said opposite end of said boat when elevated to a generally vertical position,
booster means on said support for selective engagement with said one end of said boat after elevating said opposite end of said boat,
self-releasable means between said support and the opposite end of said boat for releasably attaching said loading element to said opposite end of said boat at a position inwardly from the distal end of said loading element to lift said opposite end of said boat off of the ground before lifting said one end

off of the ground to position said boat in a generally vertical position,

said self-releasable guide means comprises a guide receptacle mounted on said boat for receiving said loading element therein,

a rotatable pulley on said support adjacent said fulcrum guide means having said loading element wrapped on and off thereof upon actuation of said winch means, and

said guide receptacle opening in a direction toward said pulley to enable withdrawal of said load element from said guide receptacle when said guide receptacle is adjacent said pulley to release said opposite end of said boat from engagement with said loading element.

14. An apparatus for loading a boat onto a carrier comprising,

a support,

winch means on the support including a retractable loading element having its distal end detachably connectable to one end of said boat,

said loading element being detachably connectable inwardly from its distal end to the opposite end of said boat,

fulcrum guide means on said support for movingly supporting said opposite end of said boat when elevated to a generally vertical position

booster means on said support for selective engagement with said one end of said boat after elevating said opposite end of said boat,

another winch means on said support including a retractable unloading line for unloading said boat, and

said unloading line includes detachable connection means adjacent its distal end for attachment to the opposite end of said boat.

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