Feb. 2, 1954 H. F. PROEHL 2,667,984

BOAT CARRIER

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Fig. 1

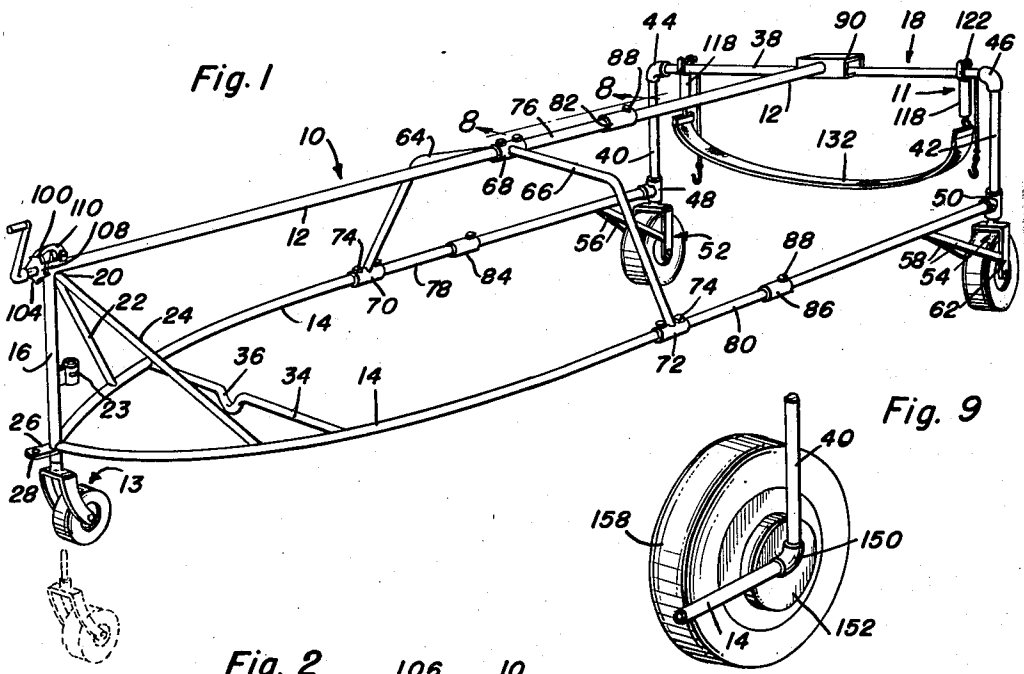


Fig. 9

Fig. 2

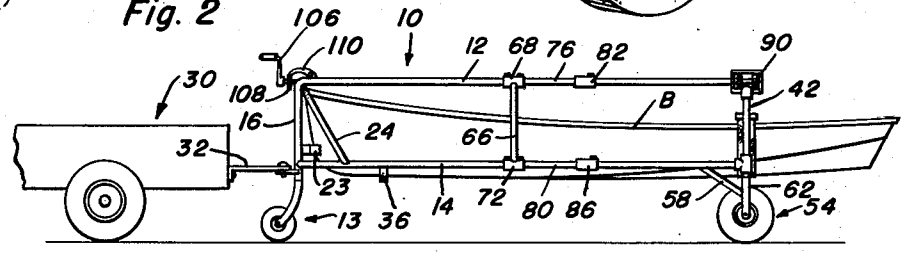


Fig. 5

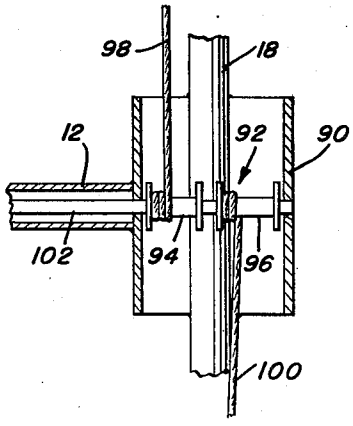
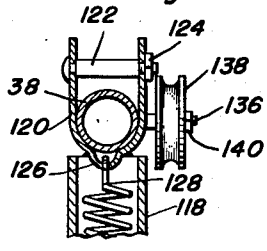


Fig. 7



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Fig. 3

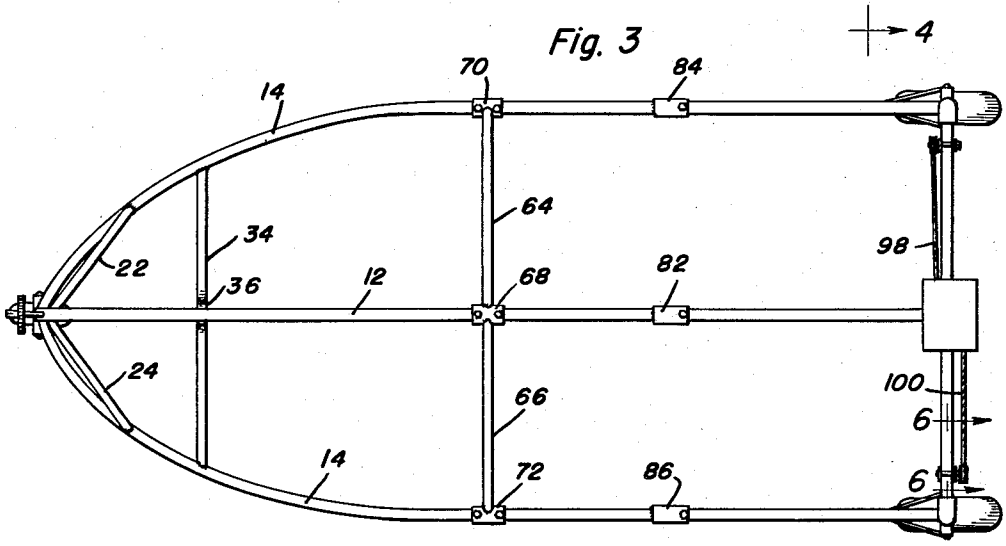


Fig. 6

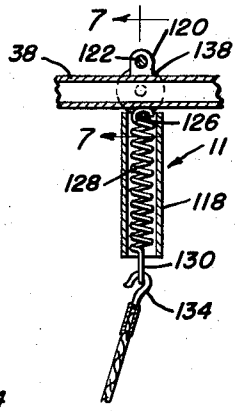


Fig. 4

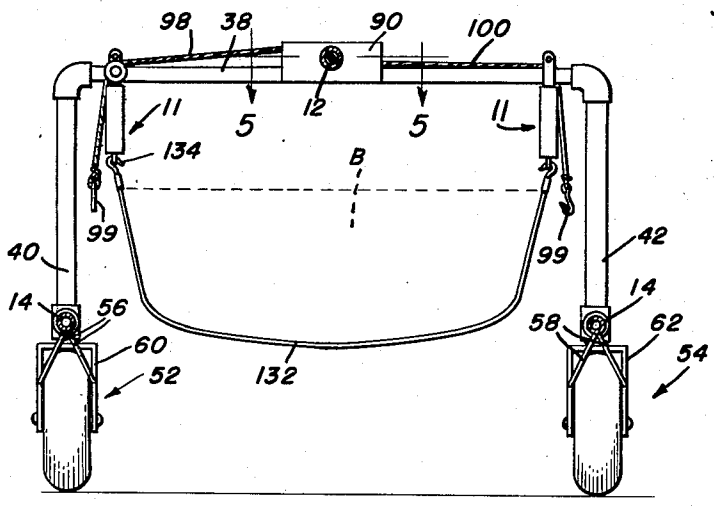
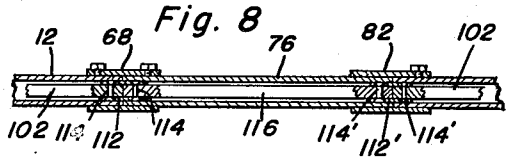


Fig. 8



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Patented Feb. 2, 1954

2,667,984

UNITED STATES PATENT OFFICE

2,667,984

BOAT CARRIER

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Application May 28, 1951, Serial No. 228,613

6 Claims. (Cl. 214—396)

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The present invention relates to improvements in boat carriers, and more particularly to a boat carrier which is of extensible form, whereby boats of varying lengths can be carried thereby, and wherein means is provided on the boat carrier for raising and lowering the boat relative thereto. The application is a continuation-in-part of my copending application, Serial No. 139,143, filed January 8, 1950, now abandoned.

An object of the present invention is to provide a boat carrier comprised of a frame supported on wheels, the longitudinal bars of the frame being of extensible form whereby the frame can be made to assume various lengths for accommodating various size boats.

Another object of the present invention resides in the provision of means for supporting a boat within the frame, the means for supporting the stern of the boat including a strap resiliently carried by the hanger member of the frame which is disposed at the rear of the boat carrier.

A still further object of the present invention resides in the provision of winch means with means for effecting winding of the same, the cable being windable on the winch means and disposed over pulleys whereby the free ends of the cable can be secured to a boat when it is desired to raise the boat into the boat carrier for positioning the stern of the boat over the strap.

Various other objects and advantages will become apparent from the detailed description to follow. The best form in which I have contemplated applying my invention is clearly illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective view of the entire boat carrier of the present invention;

Figure 2 is a side elevational view of the boat carrier shown attached to the rear of a vehicle and with a boat supported within the boat carrier;

Figure 3 is a top plan view of the boat carrier;

Figure 4 is a vertical transverse sectional view taken substantially along the plane of line 4—4 of Figure 3;

Figure 5 is a horizontal sectional view taken substantially along the plane of line 5—5 of Figure 4;

Figure 6 is a vertical sectional view taken substantially along the plane of line 6—6 of Figure 3;

Figure 7 is a vertical transverse sectional view taken substantially along the plane of line 7—7 of Figure 6;

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Figure 8 is a vertical longitudinal sectional view taken substantially on the plane of line 8—8 of Figure 1; and

Figure 9 is a detail perspective view of a modified rear wheel arrangement for the trailer.

Referring more particularly to the drawings, wherein like numerals designate like parts throughout, the numeral 10 designates generally the boat carrier of the present invention which is comprised of a frame having a center bar 12, a substantially U-shaped lower bar 14, a vertical bar 16 provided by an extension of the center bar 12 which is angulated downwardly for connection to the bight portion of the U-shaped lower bar 14, and a substantially U-shaped hanger member designated generally by the numeral 18 for interconnecting the rear ends of the longitudinally extending bars of the frame.

Looking now at Figure 1, it will be seen that the center bar 12 is angulated at 20 to provide the vertically extending bar 16. A pair of brace struts 22 and 24 are fixedly secured to the vertex of the angularly extending bars 12 and 16 and have their free ends fixedly secured to opposing portions of the bar 14 for rigidifying the forward end of the frame. The lower end of the vertical bar 16 is provided with a forwardly extending bracket 26 having an aperture 28 formed therein whereby the boat carrier can be secured to a towing vehicle, such as the vehicle 30 provided with the towing bracket 32, as seen best in Figure 2.

The frame of the boat carrier is further provided with a bow supporting strut 34 which interconnects forward intermediate portions of the substantially U-shaped lower bar 14, a central portion of the strut 34 having a dip 36 formed therein for engagement with the keel of the boat.

The hanger member 18 of the frame is of substantially U-shaped form and has a horizontally disposed bar 38 connected to vertically disposed bars 40 and 42 by means of the elbows 44 and 46. The lower portions of the bars 40 and 42 have T-fittings 48 and 50 secured thereto and to the rear ends of the legs of the U-shaped bar 14. A pair of wheels 52 and 54, of conventional form, are secured to the lower ends of the bars 40 and 42 for supporting the rear end of the boat carrier frame. Rigidifying struts 56 and 58 are fixedly secured to the underside of the lower bar leg portions with their free ends connected to the fork-like wheel supporting elements 60 and 62.

Central portions of the longitudinally extend-

ing bars 12 and 14 are maintained in fixed spaced parallel relation by means of the pair of angulated transverse bars 64 and 66. The angulated bars 64 and 66 are joined by means of the common sleeve 68 while the free ends of the bars 64 and 66 have sleeves 70 and 72 fixedly secured thereto. The sleeves 68, 70 and 72 are adapted to interconnect the sectional portions of the longitudinally extending bars of the frame by means of the set screws 74 provided in each of the sleeves.

When it is desired to extend the length of the frame, extension sections 76, 78 and 80 are provided, each of the extensions having a sleeve 82, 84, and 86, respectively, secured thereto. The sleeves 82, 84 and 86 are each provided with a set screw 88 whereby the extension can be fixedly secured to the rear sections of the longitudinally extending bars 12 and 14, the forward ends of the extensions 76, 78 and 80 being connected to the sleeves 68, 70 and 72 by means of the set screws in those sleeves.

Looking now at Figures 4, 5, 6 and 7, the means for supporting the stern of the boat will be more readily understood. The after end of the longitudinally extending center bar 12 is fixedly secured to the substantially rectangular hollow housing 90 which is fixedly carried by the transversely extending bar 38. A winch 92 is rotatably supported within the housing 90 and is comprised of two sections 94 and 96. Each of the sections 94 and 96 of the winch 92 has a cable 98 and 100, respectively, secured for winding thereon.

A shaft 102 has its rear end fixedly secured to the winch 92 for effecting rotation of the same. The shaft 102 is disposed in the hollow tubular bar 12 and extends outwardly of the forward end of the bar 12, as at 104. A handle of crank form is fixedly secured to the shaft at 104, the handle being designated by the numeral 106. A ratchet wheel 108 is fixedly secured to the shaft portion 104 and a pawl 110 is pivotally carried by the upper forward end of the center bar 12 for engagement in the ratchet wheel 108 whereby the shaft 104 can be maintained from rotation.

As seen best in Figure 8, the shaft 102 is of sectional form having forward and rear portions which can be connected by the inner sleeve 112 and pins 114. However, in the form shown in Figure 8, a sectional extension shaft 116 interconnects the forward and rear sections of the shaft 102 by means of the inner sleeves 112 and 112' with the pins 114 and 114'.

Opposing end portions of the transverse bar 38 have strap holding means 11 secured thereto. The strap holding means is best disclosed in Figures 6 and 7 as including tubular elements 118 having their ends fixedly secured to the U-shaped clamping elements 120. The U-shaped clamping elements 120 have lugs 122 extending through their leg portions with nuts 124 engaged thereon whereby the U-shaped elements 120 can be engaged over the bar 38 and clamped in preselected positions thereon. The bight portion 126 of the U-shaped element 120 is formed with a hanger loop whereby a resilient coil spring 128 can be supported within the tubular element 118. Each of the coil springs 128 terminates with a hook 130, the two hooks 130 providing means whereby the stern supporting strap 132 can be supported, the strap 132 having hooks 134 secured to its terminal portions.

U-shaped clamp elements 120 are each provided with outwardly extending pins 136 upon which a pulley sheave 138 is rotatably supported,

a nut 140 retaining the pulley sheave 138 on the pin 136.

As seen in Figure 3, the cables 98 and 100 are engaged over the pulley sheaves 138, their terminal hooks 99 being provided for engagement with the stern of a boat whereby the same can be lifted.

In view of the foregoing, it is believed that a boat carrier has been provided which will accomplish all of the objects hereinabove set forth. Furthermore, in view of the simplicity of the structure of the present invention, it is believed that the manner in which the same is employed will be readily obvious to one skilled in the art.

When it is desired to support a boat by the carrier, the bow is engaged over the bow-supporting bar 34. The cables 98 and 100 are lowered so that the hooks 99 can be secured to the stern of the boat. The crank 106 is then rotated so that the winch sections 94 and 96 respectively wind the cables 98 and 100 thereon. The stern of the boat will thereby be raised and can be maintained in raised positon until the strap 132 is disposed thereunder. The cables will, of course, be maintained in raised position by means of the ratchet and pawl arrangement at the forward end of the frame. It will thereby be seen that the boat will be resiliently supported by the boat carrier. Furthermore, should it be desired to accommodate a boat of greater length, the extensions can be inserted into the frame to provide an elongated frame.

In the embodiment preferred, the forward wheel 13 is of the "crazy" type, while the rear wheels 52 and 54 are of the caster type. After the trailer has been attached to the towing vehicle, the forward wheel of the trailer is removed.

The modified arrangement shown in Figure 9 includes the provision of elbows 150 joining tubular portions of the frame. The brake housings 152 of the wheels are fixedly secured to each of the elbows 150, as by weld, conventional automobile size tires 158 being rotatably carried by the conventional spindle.

Having described the invention, what is claimed as new is:

1. A boat carrier frame comprising a longitudinally extending center bar, an inverted U-shaped hanger having a web portion and vertical downwardly depending leg portions, means connecting said hanger at the mid-point of its web to the rear end of said center bar, a vertical downwardly depending bar secured to the forward end of said center bar, a V-shaped lower bar having arcuately diverging legs being secured at its apex to the free end of said vertical bar and at its ends to the free ends of said hanger leg portions, a bow supporting bar secured at its ends to the diverging leg portions of said lower bar adjacent the apex thereof, a rotatable shaft extending through said center bar and means for rotating said shaft at the forward end of said center bar, a winch at the other end of said shaft and rotatable therewith, cables wound on said winch, pulleys mounted on said hanger adjacent the ends of its web portion, said cables being entrained over said pulleys and depending vertically therefrom for raising the stern of a boat.

2. A boat carrier frame comprising a longitudinally extending center bar, an inverted U-shaped hanger having a web portion and vertical downwardly depending leg portions, means connecting said hanger at the mid-point of its web to the rear end of said center bar, a vertical

downwardly depending bar secured to the forward end of said center bar, a V-shaped lower bar having arcuately diverging legs being secured at its apex to the free end of said vertical bar and at its ends to the free ends of said hanger leg portions, a bow supporting bar secured at its ends to the diverging leg portions of said lower bar adjacent the apex thereof, a rotatable shaft extending through said center bar and means for rotating said shaft at the forward end of said center bar, a winch at the other end of said shaft and rotatable therewith, cables wound on said winch, pulleys mounted on said hanger adjacent the ends of its web portion, said cables being entrained over said pulleys and depending vertically therefrom for raising the stern of a boat, said hanger and center bar connecting means comprising a rectangular housing secured to the mid-portion of said hanger bar web portion, and spacedly surrounding a portion of said web portion, said center bar being secured to one side wall of said housing, said shaft extending through said housing and overlying the web portion of said hanger.

3. The combination of claim 2 wherein said winch is disposed in said housing, said winch comprising a pair of cable winding drums fixedly mounted on said shaft.

4. A boat carrier frame comprising a longitudinally extending center bar, an inverted U-shaped hanger having a web portion and vertical downwardly depending leg portions, means connecting said hanger at the mid-point of its web to the rear end of said center bar, a vertical downwardly depending bar secured to the forward end of said center bar, a V-shaped lower bar having arcuately diverging legs being secured at its apex to the free end of said vertical bar and at its ends to the free ends of said hanger leg portions, a bow supporting bar secured at its ends to the diverging leg portions of said lower bar adjacent the apex thereof, a rotatable shaft extending through said center bar and means for rotating said shaft at the forward end of said center bar, a winch at the other end of said shaft and rotatable therewith, cables wound on said winch, pulleys mounted on said hanger adjacent the ends of its web portion, said cables being entrained over said pulleys and depending vertically therefrom for raising the stern of a boat, said means for rotating and locking said shaft including a crank secured to said shaft, a ratchet wheel secured to said shaft and a pawl mounted on said center bar for contacting said ratchet wheel and locking the shaft against rotation.

5. A boat carrier comprising a frame having a longitudinally extending center bar and a substantially U-shaped lower bar, a vertical bar joining the forward end of said center bar with

the bight portion of said lower bar to fixedly maintain the same in spaced parallel planes, an inverted substantially U-shaped hanger member having its bight portion connected to the rear end of said center bar and having its free ends connected to the free ends of said lower bar, and means carried by said frame for supporting a boat within the frame, a bow supporting strut joining forward intermediate portions of said lower bar, a rotatable shaft extending through said center bar and means for rotating said shaft at the forward end of said center bar, a pair of cable winding drums at the other end of said shaft and rotatable therewith, pulleys mounted on the bight portion of said hanger member on opposite sides of said center bar, cables wound on said winch and entrained over said pulleys to depend vertically therefrom for raising the stern of a boat.

6. A boat carrier comprising a frame having a center bar and a substantially U-shaped lower bar, a vertical bar joining the forward end of said center bar with the bight portion of said lower bar to fixedly maintain the same in spaced parallel planes, an inverted substantially U-shaped hanger member having its bight portion connected to the rear end of said center bar and having its free ends connected to the free ends of said lower bar, and means carried by said frame for supporting a boat within the frame, the longitudinally extending bars of said frame being extensible for accommodating boats of varying size, a longitudinally extensible rotatable shaft extending through said center bar and means for rotating said shaft at the forward end of said center bar, a pair of cable winding drums at the other end of said shaft and rotatable therewith, pulleys mounted on the bight portion of said hanger member on opposite sides of said center bar, cables wound on said winch and entrained over said pulleys to depend vertically therefrom for raising the stern of a boat.

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