

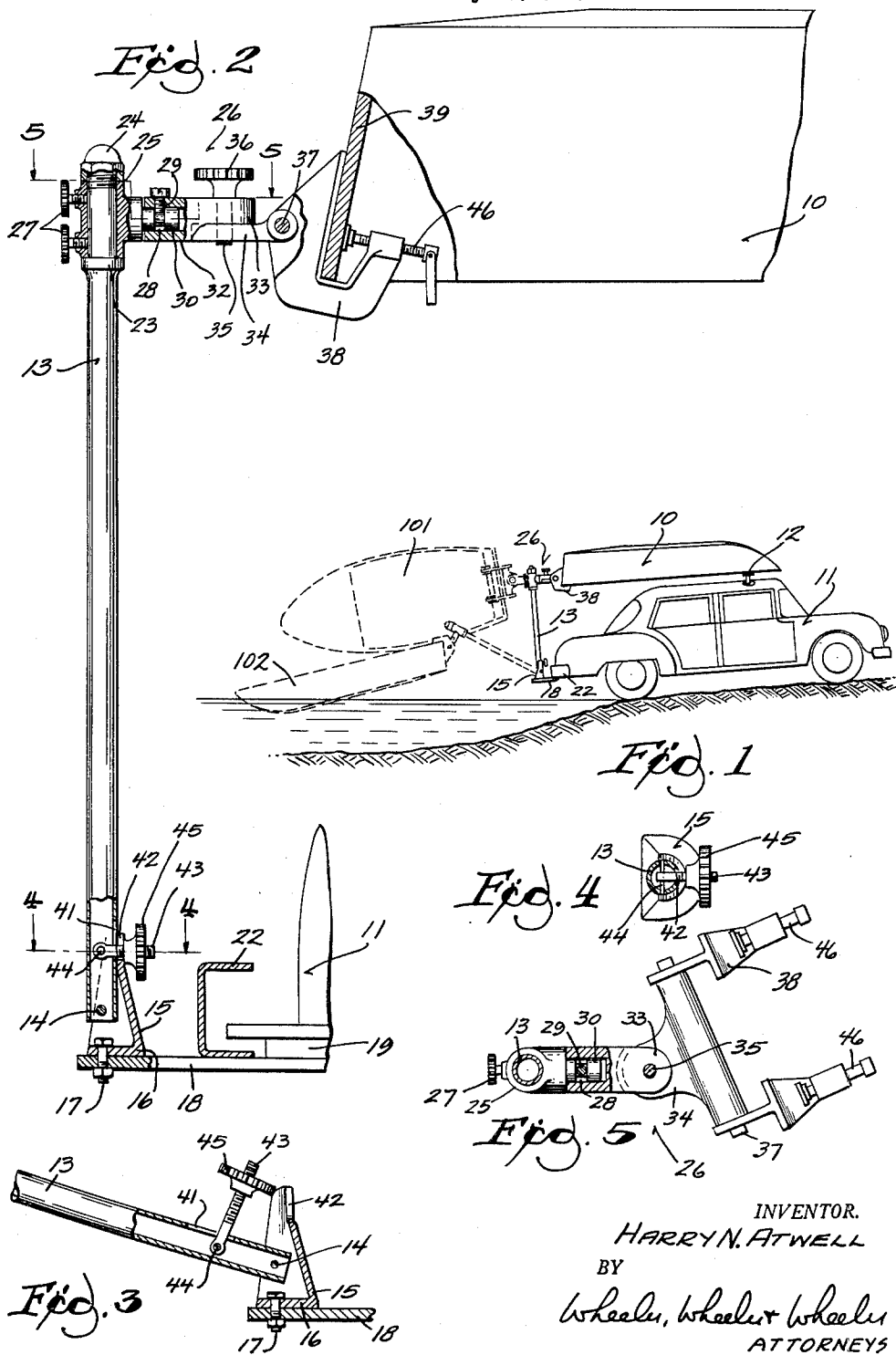
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CAR TOP BOAT LOADER AND UNLOADER

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CAR TOP BOAT LOADER AND UNLOADER

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This invention relates to a car top boat loader and unloader.

United States Patent 2,772,799 to L. J. Bridinger of December 4, 1956 is an example of prior art attempts to fasten a boat to the top of a car and to permit one man to unload the boat from car top position to ground position and to load the boat from ground position to car top position. Such prior art devices have not achieved commercial success because of the excessive manual effort required. The device of the present invention greatly improves upon such prior art devices by materially reducing the manual effort involved and enabling one man to easily manipulate the boat between ground and car top position.

An important feature of the device of the present invention is the universal coupling by which the boat transom is universally connected to the upright post which supports the rear end of the boat from a rear frame member of the car. The said coupling adapts the boat to be pivoted on its longitudinal axis between upright and inverted position in the course of manipulating it between upright ground position and inverted car top position. Moreover, in the device of the present invention the upright post is pivotally connected to the car frame fitting so that the post can be swung between a substantially horizontal position in which the boat can be supported in level position on the ground or on the water and an upright position in which the boat is at level inverted car top position. The coupling between the post and the car frame has means for immobilizing its pivot to securely anchor the post in vertical position when the vehicle is moving.

My inventive concept also includes the novel method of manipulating the boat between car top inverted position and ground or water upright position, the apparatus disclosed in the instant application being merely one example of specific apparatus adapted to carry out the method.

Other objects, advantages and features of the invention will appear from the following disclosure in which:

FIGURE 1 is a diagrammatic view illustrating in full and broken lines various positions of the boat in the course of manipulating it between inverted car top position and upright ground or water level position.

FIGURE 2 is a greatly enlarged side elevation, partly in cross section, of apparatus embodying the present invention.

FIGURE 3 is a fragmentary view, partly in elevation, and partly in cross section, showing the post pivoted toward its horizontal position.

FIGURE 4 is a cross section taken along the line 4-4 of FIGURE 2.

FIGURE 5 is an axial cross section taken through the pivot stud of the universal coupling between the boat transom bracket and support, this view being taken generally along the line 5-5 of FIGURE 2 but showing the transom bracket swung laterally.

As best shown in FIGURE 1, the boat 10 is transported in inverted position on top of the car or vehicle 11 which has a single forward car top cradle 12 on which the forward portion of the boat is supported. The rear of the inverted boat is supported on post 13 which is pivotally connected on pin 14 to a saddle shaped fitting 15 anchored to the car frame. In the illustrated embodiment fitting 15 has a base web 16 connected by the bolt

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17 to a trailer hitch 18 from which the ball has been removed. Hitch 18 is fastened in conventional fashion to the frame 19 and bumper 22 of the car. While the post 13 may be solid, I prefer to make it tubular as shown in the drawings.

Near its top post 13 is provided with a collar 23 and an end cap 24 spaced from the collar and desirably threaded to the end of the pipe. Between collar 23 and end cap 24 the post provides a bearing for the sleeve 25 of a boat transom bracket coupling, indicated generally by reference character 26. The sleeve 25 may be provided with set screws 27 to lock the sleeve against rotation.

Sleeve 25 has laterally extending therefrom a pivot stud 30 on which sleeve 32 is rotatable. Stud 30 has a circumferential groove 28 in which a set screw 29 for the sleeve 32 rides. The groove 28 has an arcuate extent of about 180° so that sleeve 32 can be rotated through about 180° on the axis of stud 30.

The set screw 29 is threaded in the sleeve 32 so that when the screw is tightened, it will lock the sleeve against rotation on the stud 30.

Sleeve 32 has a flattened ear 33 with which transom bracket ear 34 is complementary, the respective ears being pivotally connected by the pin 35 which is threaded in the ear 34. Pin 35 has a hand wheel 36 by which the pin may be tightened to lock ears 33 and 34 against relative oscillation.

Ear 34 is pivotally connected on the pin 37 to the transom bracket 38 which is otherwise conventional and has clamp screws 46 adapted to clamp the bracket to the transom 39 of the boat 10.

The coupling 26 provides a universal articulate connection between the transom bracket 38 and the post 13. When set screws 27, 29 and 36 are loosened, sleeve 25 may rotate on the axis of post 13, sleeve 32 may oscillate on the axis of stud 30 which is transverse to post 13, ear 34 may oscillate on the axis of pin 35 and bracket 38 may oscillate on the axis of pin 37.

As best shown in FIGURES 2, 3 and 4, the post 13 may be locked against pivotal movement on its pin 14; for example, when the boat is loaded and the vehicle is in readiness for movement. The saddle fitting 15 has a slot 42 which runs out of the top margin of the saddle and is aligned to receive the bolt 43 which is pivotally connected to the post 13 on the cross pin 44 which spans across the interior of the post tube 13. The tube 13 is slotted at 41 to permit pivotal movement of the bolt. Bolt 43 carries a hand wheel 45 which, when positioned as shown in FIGURE 2, spans across the margins of the slot 42 to immobilize the pivot 14. However, when the hand wheel 45 is backed away from engagement with the margins of the fitting around the slot 42, and is swung upwardly on the pivot 44 until the hand wheel clears the fitting 15, the post can be pivoted rearwardly on pivot pin 14, as is illustrated in FIGURE 3.

To unload the boat from its inverted car top position shown in full lines in FIGURE 1, the operator simply loosens set screws 27, 29, 35 leaving hand wheel 45 tightened to immobilize the pin 14. The operator can then simply lift the front end of the boat off of the cradle 12 and swing it laterally on the vertical axis of post 13, sleeve 25 rotating on the post 13 until the boat has cleared the vehicle. Once the boat is clear of the vehicle, it is rotated on its longitudinal axis, as shown in broken lines at 101 in FIGURE 1, sleeve 32 of coupling 26 rotating on the stud pivot pin 30 until the boat is upright.

The boat can be thus rotated on its longitudinal axis regardless of alignment thereof with the stud pin 30, because the respective pins 30, 35, 37 which are at mutual right angles, function as a universal joint.

With the forward end of the boat now resting on the ground or supported by water, wheel 45 may be released, bolt 43 pivoted upwardly on its pin 44 and having thus unlocked the pivot pin 14, the post 13 may be swung from its vertical position toward a horizontal position thereby lowering the rear end of the boat, as illustrated in broken lines at 102 in FIGURE 1. When the boat is completely lowered, the screw clamp 46 of the transom bracket may be loosened to release the bracket from the boat transom 39.

To load the boat from water or ground supporting position to the top of the car, the foregoing sequence of steps is simply reversed. When the boat is positioned upside down on the car cradle 12, the various set screws 45, 27, 29, 36 are all tightened to lock the respective pivot pins and secure the boat in position on top of the vehicle in readiness for transport.

In the course of loading the boat, post 13 is moved from its position shown in FIG. 3 to its position shown in FIG. 2. In the course of this movement, the hand wheel 45 will simply ride up the curved side walls of the saddle 15 and will drop behind the saddle when the post is nearly upright to automatically latch the post against inadvertent return to ground position.

I claim:

1. A car top boat unloader comprising a post adapted to be fastened in upright position on the car frame, a boat transom bracket and a coupling mounting the transom bracket on said post for pivotal movement about a vertical axis whereby a boat having its transom engaged by said bracket can be swung generally in a horizontal plane between a first position on top of the car and a second position clear of the car, said coupling further comprising means on which the boat may be pivoted about its longitudinal axis between inverted and upright positions in the course of manipulating the boat between inverted position on top of the car and an upright position at ground or water level.

2. The device of claim 1 in further combination with means for pivotally connecting said post to the car frame including means for immobilizing the pivot with the post substantially upright.

3. A car top boat unloader comprising a post adapted to be fastened in upright position on the car frame, a boat transom bracket and a coupling mounting the transom bracket on said post for pivotal movement about a vertical axis whereby a boat having its transom engaged by said bracket can be swung generally in a horizontal plane between a first position on top of the car and a second position clear of the car, said coupling further comprising means on which the boat may be pivoted about its longitudinal axis between inverted and upright positions in the course of manipulating the boat between inverted position on top of the car and an upright position at ground or water level, in further combination with means for pivotally connecting said post to the car frame including an upright saddle open at its side away from the car and having its side toward the car provided with a slot running out of the top of said side, said post having an anchor bolt pivoted thereto for swinging in a vertical plane, said bolt having a nut which engages the margins of the slots when the bolt is swung into the slot, but

which is released from the margins of the slot when the bolt is swung out of the slot.

4. A car top boat unloader comprising a post adapted to be fastened in upright position on the car frame, a boat transom bracket and a coupling universally mounting the transom bracket on said post whereby a boat having its transom engaged by said bracket is pivotally connected to the post for swinging movement in all planes including rotation on its longitudinal axis for moving the boat between an inverted position on top of the car and an upright position clear of the car.

5. A car top boat unloader comprising a post adapted to be fastened in upright position on the car frame, a boat transom bracket and a coupling universally mounting the transom bracket on said post whereby a boat having its transom engaged by said bracket is pivotally connected to the post for swinging movement in all planes including rotation on its longitudinal axis for moving the boat between an inverted position on top of the car and an upright position clear of the car, said coupling comprising a sleeve rotatably mounted on the post, a pivot stud laterally projecting from said sleeve, a pivot sleeve rotatable on said stud, said pivot sleeve having a projecting ear with a transverse pivot pin, said transom bracket having a complementary ear pivotally connected to said pivot pin, the ear last mentioned having a pivotal connection to the transom bracket.

6. The device of claim 5 in which said pivot stud is provided with a groove, said sleeve having a radial pin guided in said groove and means for immobilizing the sleeve against pivotal movement on the stud.

7. The device of claim 5 in which the sleeve mounted on the post is provided with set screws to lock the sleeve with respect to the post.

8. A method of manipulating a boat between a ground or water position and a car top position and comprising the steps of connecting while it is upright on the ground or water one end of the boat with a support post pivotally connected to the car, swinging the post to upright position to elevate the end of the boat connected to the post, manually rotating the boat on its longitudinal axis to inverted position, and swinging the boat about the axis of the upright post to inverted position on top of the car.

9. The method of claim 8 plus the further steps of unloading the boat from its inverted car top position consisting of swinging the boat while it is inverted about the axis of the upright post in a horizontal plane until the boat is clear of the car, rotating the boat on its longitudinal axis to an upright position, and swinging the post downwardly on its pivot to lower the boat to ground or water position.

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