

July 15, 1969

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3,455,472

LOADING GUIDE FOR BOAT TRAILERS

Filed Dec. 29, 1967

3 Sheets-Sheet 1

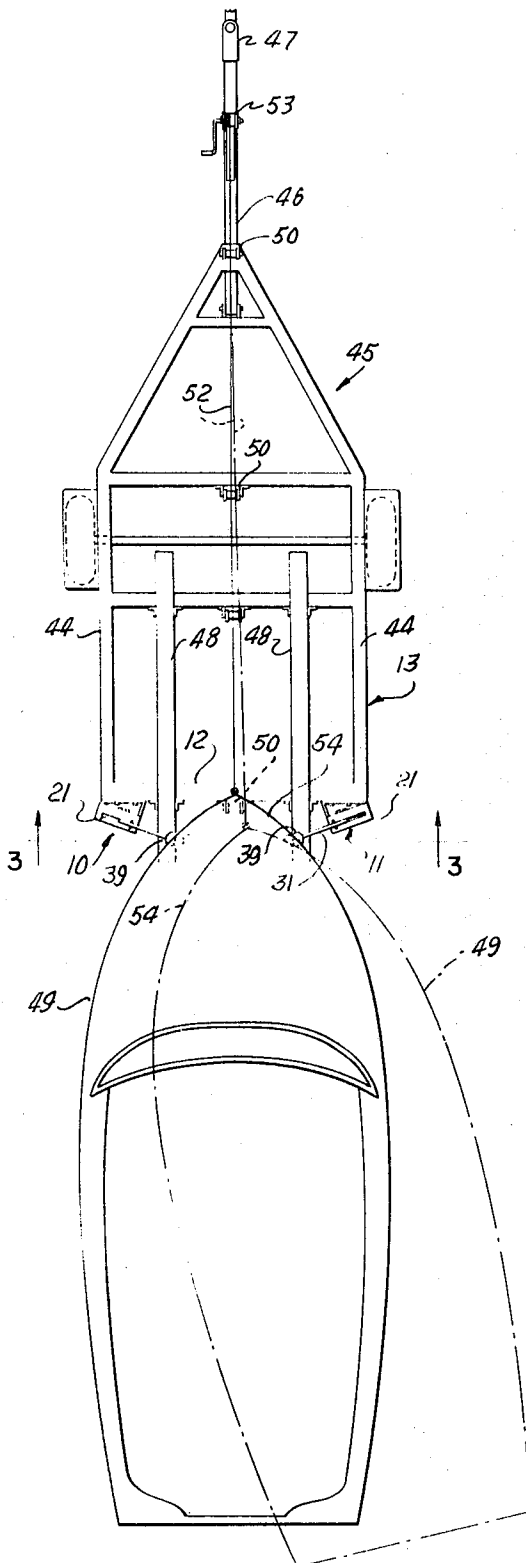
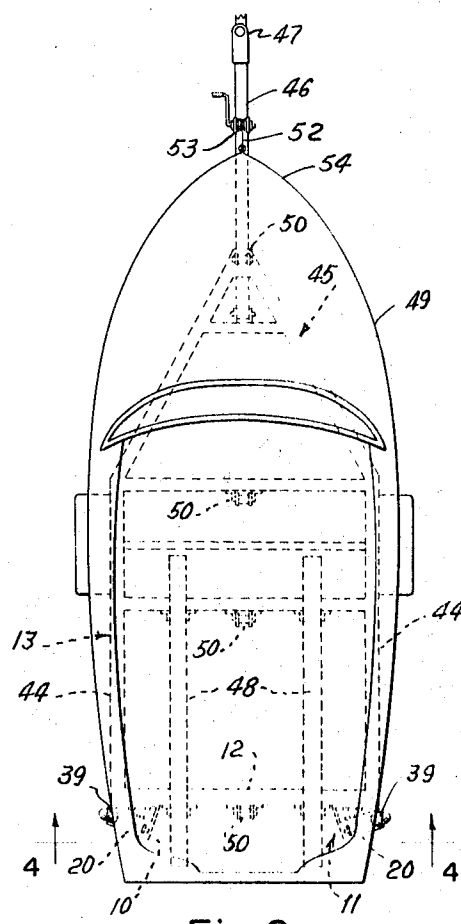


Fig. 2

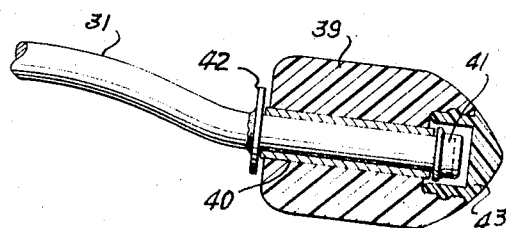


Fig. 9

Fig. 1

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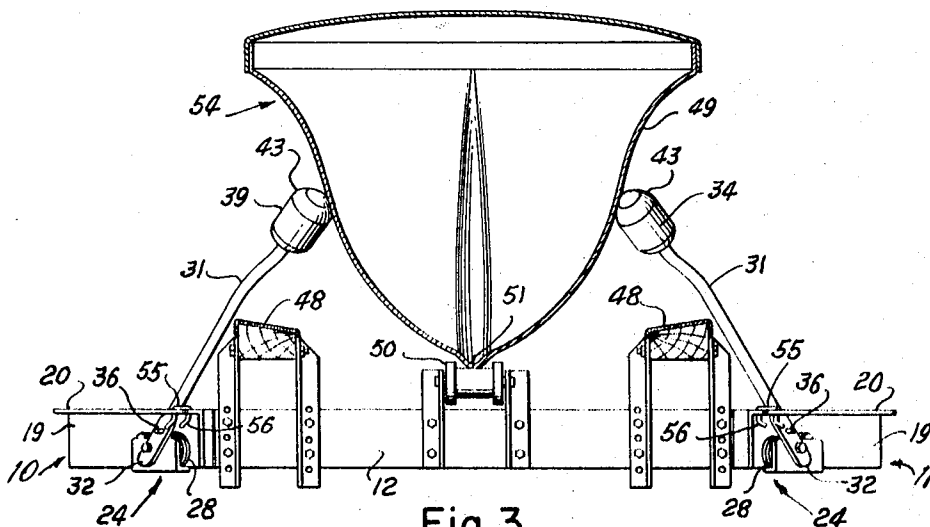
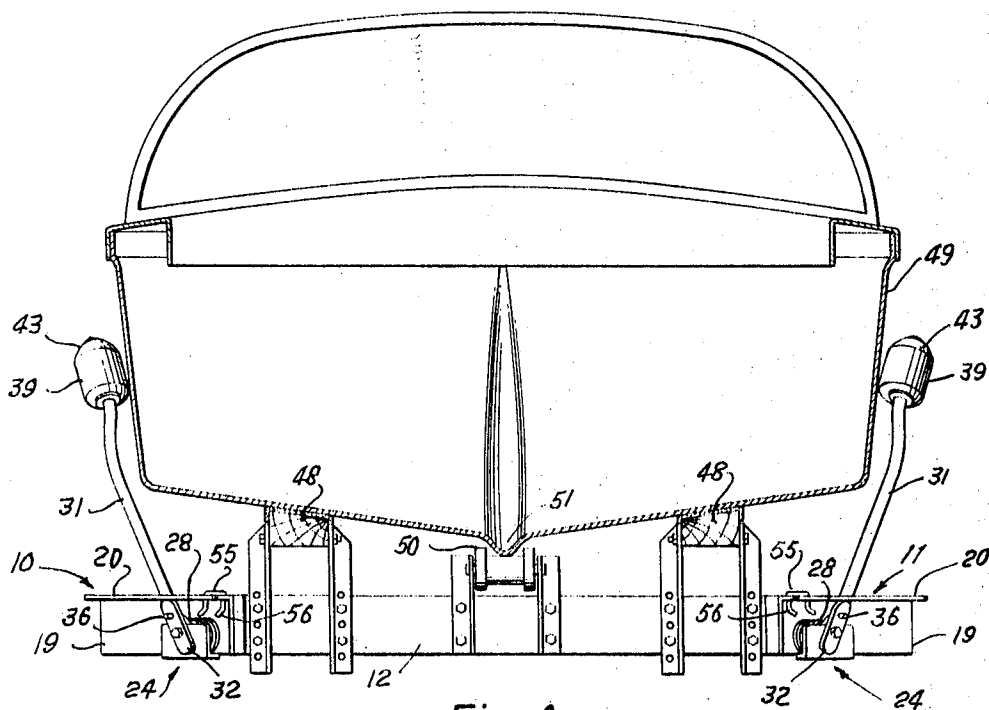
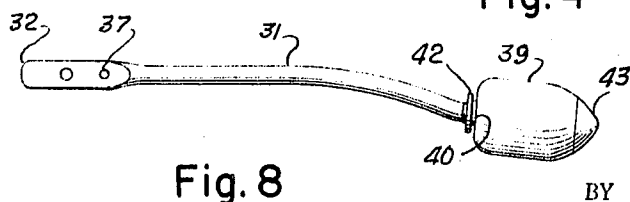
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2 Sheets-Sheet 2



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LOADING GUIDE FOR BOAT TRAILERS

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3 Sheets-Sheet 3

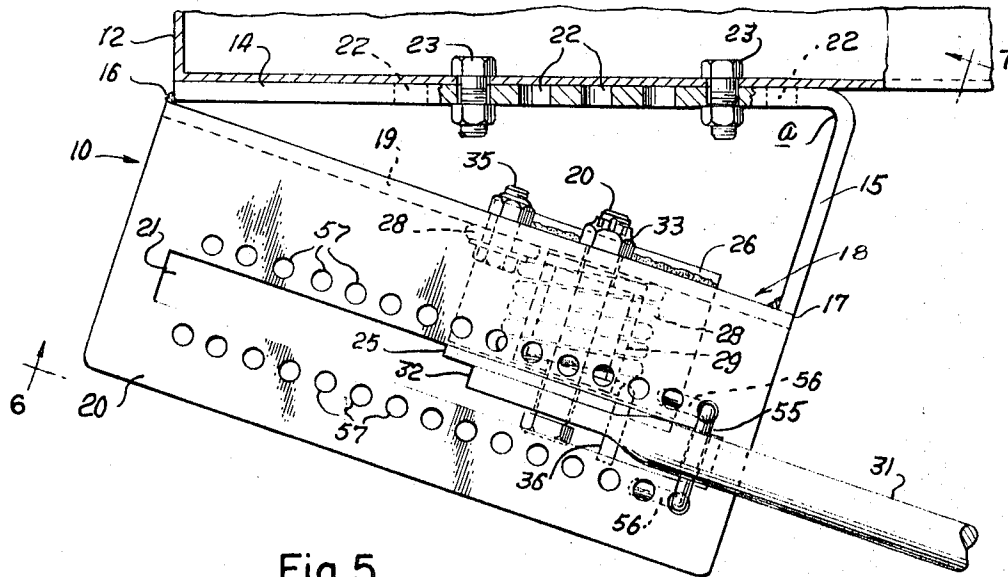


Fig. 5

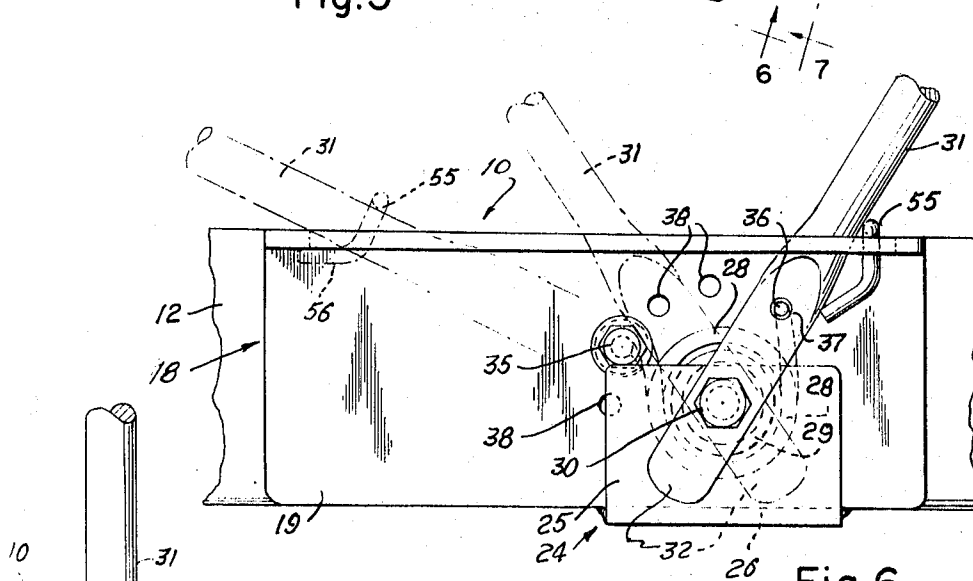


Fig. 6

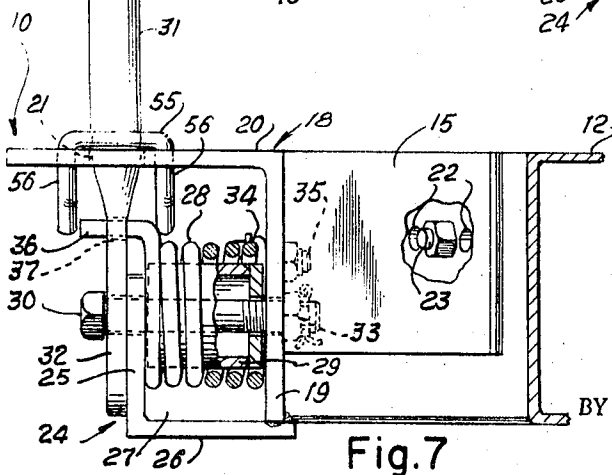


Fig. 7

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LOADING GUIDE FOR BOAT TRAILERS

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4 Claims

ABSTRACT OF THE DISCLOSURE

A loading guide for boat trailers comprising a pair of oppositely arranged guide arms pivotally connected at their inner ends, to right- and left-hand brackets secured to the rear frame member of a boat trailer, and biased rearwardly and inwardly by springs whereby the outer ends of the guide arms are engageable with the side walls of a boat while being loaded on the trailer to guide it to its porting position and to stabilize it in transit.

Each guide arm has a roller rotatably attached to its free end to engage the boat, and each roller is formed of a yieldable material, such as neoprene, to expedite the loading operation without marring the boat hull. The springs for biasing the guide arms are adjustable to vary the tension exerted on the arms in accordance with the width of the boat carried by the trailer, and adjustable stops limit the movement of the arms under the tension of the springs.

Summary of the invention

This invention relates to loading devices for boat trailers, and it has particular reference to apparatus for guiding a small craft onto a trailer.

A prime object of the invention resides in the provision of yieldable arms pivotally secured to brackets detachably arranged on each side of the rear frame member of a boat trailer of conventional design and having spring means for biasing the arms rearwardly, and inwardly toward the longitudinal axis of the trailer, to engage the opposing sides of a boat to be loaded thereon whereby to expedite the loading operation and minimize the effort ordinarily required in such operation.

An object of the invention is that of providing guide means by which a boat can be loaded by a single individual, using the conventional cable and windlass for propelling the craft upon the trailer, and enabling the operator to maintain control of the boat against the effect of cross-winds or currents tending to disalign the boat from its proper loading position with respect to the trailer.

Another object of the invention is that of providing a loading guide of the character described which may be readily attached to existing trailers of conventional design without modification thereof, and affording a simple and inexpensive loading aid which is easily adjustable to accommodate boats of different lateral dimensions.

Broadly, the invention contemplates the provision of a convenient means of loading small craft on trailers, and afford stabilization thereof while in transit.

Description of the drawings

While the foregoing objects are paramount, other and lesser objects will become apparent as the description proceeds when considered in connection with the appended drawings wherein:

FIGURE 1 is a plan view of a conventional boat trailer and a boat about to be loaded thereon, and showing, in broken lines, the boat in disalignment with the trailer, the bow being engaged by one of the paired guide arms.

FIGURE 2 is a plan view showing the boat loaded on

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the trailer, shown in broken lines, the sides of the stern of the boat being engaged by the yieldable arms.

FIGURE 3 is a sectional view, on line 3—3 of FIGURE 1, through the bow of the boat and the trailer frame, showing the guide arms engaging the sides of the boat as the latter is aligned with the trailer, as shown in solid lines in FIGURE 1.

FIGURE 4 is a sectional view, on line 4—4 of FIGURE 2, through the stern of the boat and the trailer, when the boat is loaded, showing the positions of the guide arms when engaging the sides of the boat.

FIGURE 5 is a plan view of the left-hand bracket, partially in section, attached to the rear frame member of the trailer, the frame member and guide arm being shown fragmentarily.

FIGURE 6 is an elevational view of the left-hand bracket shown in FIGURE 5, the rear frame member of the trailer and the guide arm being shown fragmentarily, the different positions of the latter being indicated in broken lines.

FIGURE 7 is an inner end view of the left-hand bracket, and spring assembly for biasing the guide arm, the latter being fragmentarily shown, and the spring assembly being partially broken away for clarity of detail.

FIGURE 8 is an elevational view of one of the guide arms, and

FIGURE 9 is a fragmentary view of the outer end of one of the guide arms, and showing, in longitudinal section, the yieldable roller thereon.

Detailed description

The invention is primarily concerned with a relatively compact arrangement of parts which comprise right- and left-hand brackets 10 and 11, adapted to be detachably secured to the rear frame member 12 of a conventional boat trailer 13, as best shown in FIGURES 1, 2, 3 and 4. These brackets have mounting plates 14, the inner ends of which are bent acutely outwardly at *a* to form angular portions 15, as shown in FIGURE 5.

Welded to the outer end 16 of each plate 14, and to the outer end 17 of the angular portion 15 thereof are members 18 which are angular in transverse section, having vertical and horizontal flanges 19 and 20, the latter having an elongated slot 21 longitudinally thereof. The mounting plates 14 have a plurality of apertures 22 therein by which these members can be attached to the trailer frame member 12 by bolts 23.

A sub-bracket 24, which is angular in transverse section, having flanges 25 and 26, in vertical and horizontal planes, respectively, is welded to the lowermost edge of each of the vertical flanges 19 of the members 10 and 11, as in FIGURE 7, to define a housing 27 for a spring 28 whose coils embrace a drum 29 pivotally mounted on a bolt 30 arranged through the vertical flange 25 and the depending or vertical flange 19 of each member 10 or 11.

A guide arm 31 is operatively arranged in the slot 21 of each of the members 20, having its inner end 32 pivoted on the bolt 30 whose inner end has a nut 33 thereon. This arrangement is shown best in FIGURES 5, 6 and 7.

The coil spring 28 has one end 34 rigidly attached to the depending flange 19 of each member 10 and 11 by a bolt 35 and having its opposite end 36 bent at right-angle to extend through an aperture 37 in the flattened end portion 32 of the arm 31. The tension of the spring 28 can be adjusted by changing the bolt 35 from one to another of a series of apertures 38 in an arcuate arrangement in the depending flange 19 of the members 10 or 11, thus increasing or decreasing the tension on the arms 31 as desired. On the outer end of each of the guide arms 31 is an elongated roller 39 of yieldable material, such

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as neoprene, which has a bushing 40 axially thereof embracing the arm 31 and retained by a nut or cap 41 on the outer end of the latter, and bearing against a washer 42 welded on the arm 31, as shown in FIGURE 8 and in the cross-sectional view of FIGURE 9. A conical cap 43 encloses the end of the roller 39.

As illustrated in FIGURES 1 and 2, the trailer 13 may be of conventional design, in the main having a rectangular frame whose side members 44 are generally parallel, and having a forward triangularly shaped portion 45 having a tongue 46 provided with a hitch 47 on its forward end. Such conventional trailers are provided with spaced parallel rails 48 for supporting a boat 49 thereon, and an axial arrangement of spaced spools 50 providing a support for the keel 51 of the boat, in the manner shown in FIGURES 3 and 4.

The boat 49 is usually loaded on the trailer 13 by a cable 52 wound on a windlass or winch 53 mounted on the forward end of the tongue 46, the free end of the cable 51 being detachably connected to the bow 54 of the boat 49, as shown in FIGURES 1 and 2. It is common practice to provide some type of stabilizing standards on each side of the rear portion of the trailer to both guide the boat upon the trailer during the loading operation and secure it against lateral movement in transit.

Some of these stabilizing elements are yieldable, and laterally separable, but in general are unsatisfactory where the boat is to be loaded by an unaided single individual. The instant invention is designed to overcome the disadvantages of such conventional devices.

Operation

In loading the boat 49 the operation is simplified by the use of the guide arms 31 which, under the tension of the springs 28, are normally biased inwardly, or toward each other, in the manner shown in FIGURES 1 and 3, and by reason of opposing angular arrangement of the right- and left-hand brackets 10 and 11, the arms 31 are inclined rearwardly of the trailer 13 whereby their rollers 39 are adapted to engage one or both of the rearwardly curved sides of the bow 54 of the boat 49 as the latter is drawn to the trailer 13, as indicated in broken lines in FIGURE 1, and align the boat axially thereof, as shown in solid lines.

Difficulties in loading a boat are often encountered by the prevalence of cross-winds tending to swing the stern laterally when moored by the cable 52 in preparation for loading, as graphically illustrated in broken lines in FIGURE 1. In such instances the bow 54 may be brought into contact on either side by one of the guide arms 31 which will yieldably but firmly guide the boat into axial alignment with the trailer 13 and into contact with both of the arms 31 whose rollers 39 will remain in yieldable engagement with the sides of the boat 49 until it is in place on the trailer 13, as shown in FIGURE 2, and provide stabilization therefor in transit.

The arms 31 can be freed from contact with the boat by urging them outwardly in their slots 21, against the tension of the springs 28, and securing them in the ad-

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justed positions by latch members 55 which may be formed of heavy gauge wire, or small rod, and being U-shaped to provide spaced legs 56, whose ends are bent obtusely in the same plane, and which are adapted to be inserted in one of a series of apertures 57 formed along and on each side of the slots 21 in the members 20, as best illustrated in FIGURES 5, 6 and 7. The extended positions of the arms 31 are shown fragmentarily in broken lines in FIGURE 6.

It is not intended that the invention be limited to the specific structure and arrangement of parts herein shown and described since certain changes in design may obviously be resorted to by persons skilled in the art without departing from the spirit and intent of the invention or from the scope of the appended claims.

What is claimed is:

1. In a loading guide for boat trailers having a frame, including a rear frame member, a pair of right- and left-hand brackets detachably secured to said rear frame member on each side of said trailer, each of said brackets having a horizontally extending flange, each having its longitudinal axis at an obtuse angle rearwardly of said rear frame member and toward the center of said trailer frame and having a slot formed longitudinally thereof, a guide arm pivotally attached to each of said brackets through the slot in the flange thereof and operable along said slot, a spring in each of said brackets having connection with each guide arm to bias the latter inwardly and rearwardly of said trailer to engage the sides of a boat thereon, means for adjusting the tension on said springs, and means for restraining said arms against the tension of said springs.

2. In a loading guide for boat trailers, as described in claim 1, each of the said brackets having angular attaching plates whereby the horizontal flanges thereof have their longitudinal axes in opposing angular planes rearwardly and inwardly with respect to the longitudinal axis of said trailer.

3. In a loading guide for boat trailers, as described in claim 1, wherein each of said brackets has a housing thereon, the said spring being contained in said housing and secured at one end to a portion of said bracket and having its opposite end attached to a guide arm pivoted in said housing.

4. In a loading guide for boat trailers, as described in claim 1, each guide arm having a yieldable roller rotatably attached to its outer end and engageable with a boat on said trailer.

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ALBERT J. MAKAY, Primary Examiner

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