United States Patent

Godbersen

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[54] **MOORING DEVICE FOR FLOATING BOAT HOIST**

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[52] **U.S. Cl.** .....**114/230,** 114/0.5 F

[51] **Int. Cl.** **B63b 21/00**

[58] **Field of Search**.....114/0.5 F, 230; 115/7; 61/48

[56] **References Cited**

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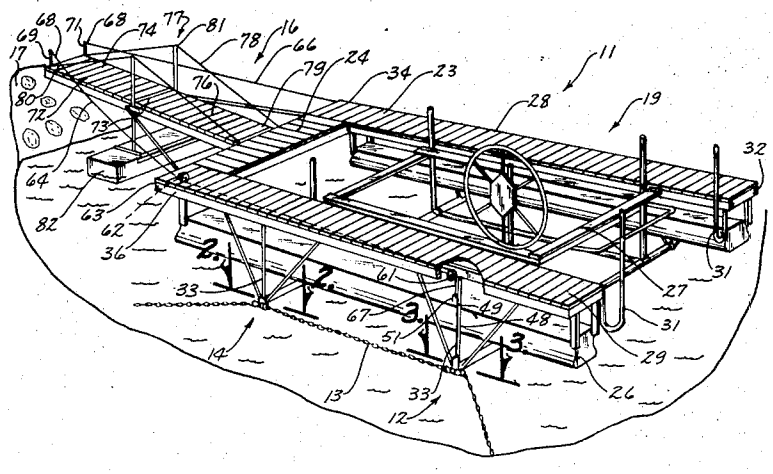
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Primary Examiner—Trygve M. Blix
Attorney—Henderson & Strom

[57] **ABSTRACT**

A novel mooring device for floating equipment, such as boat hoists and boat docks, is provided herein which is especially useful on variable waters. This mooring device comprises first means mounted on opposing sides of the equipment for releasably securing a chain therein and, in alignment therewith, chain guiding means. The chains are secured at their respective ends to the shore and the bottom of the body of water and pass through the first means and the guiding means. A line is secured to the first means and utilized to release the chains secured therein thereby allowing the floating equipment to be readily relocated by one man as the water level in the body of water changes.

10 Claims, 8 Drawing Figures



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SHEET 1 OF 2

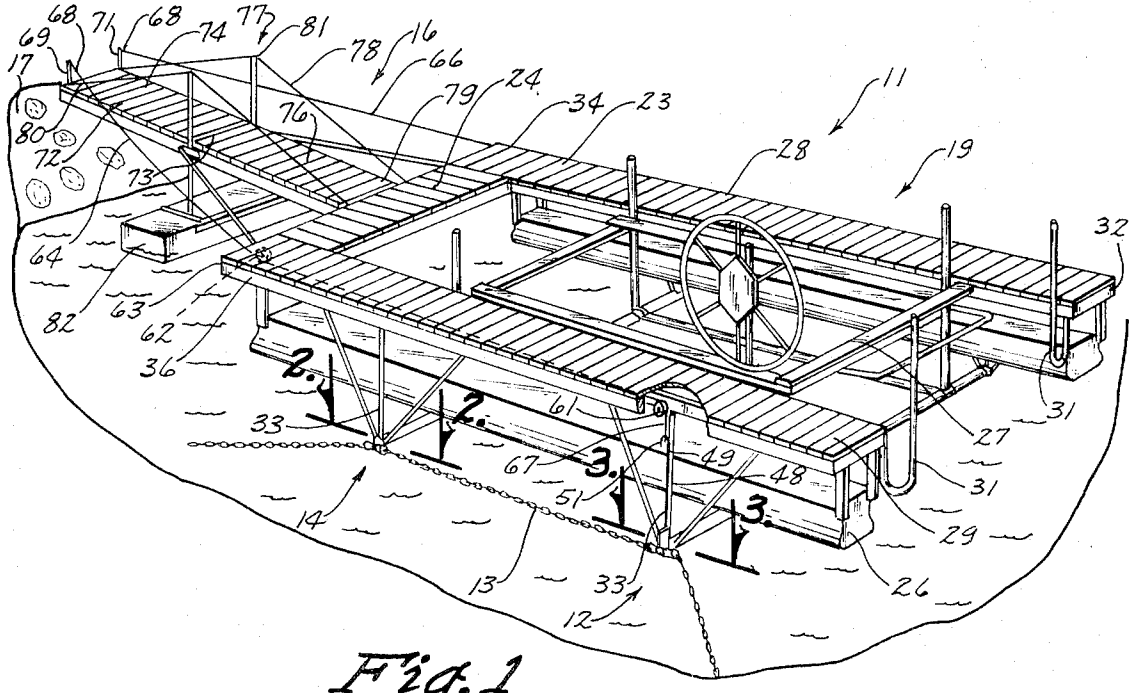


Fig. 1

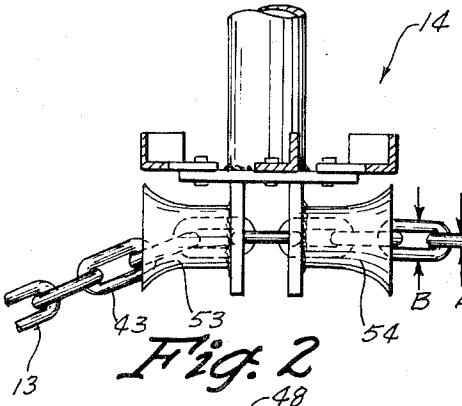


Fig. 2

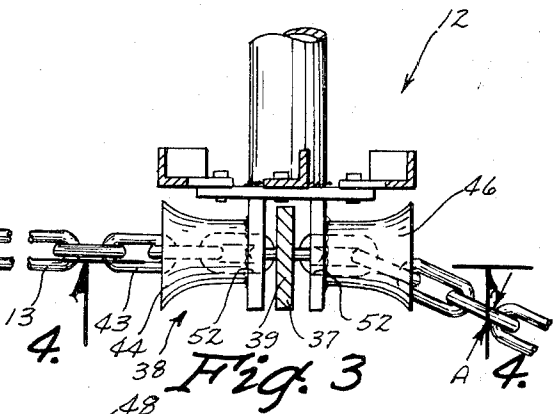


Fig. 3

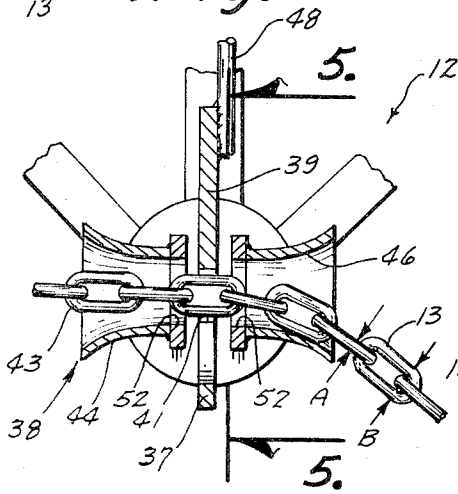


Fig. 4

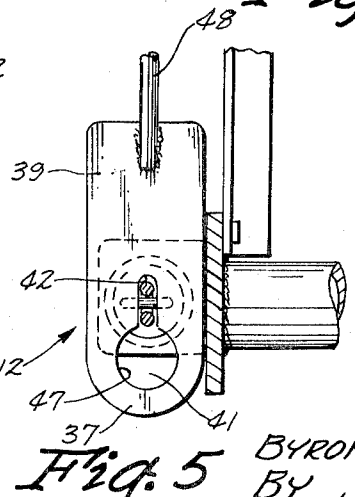


Fig. 5

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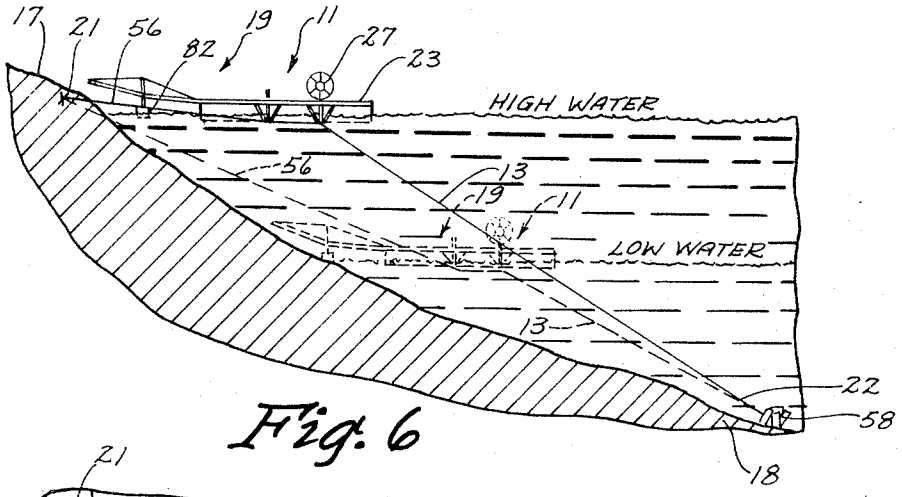


Fig. 6

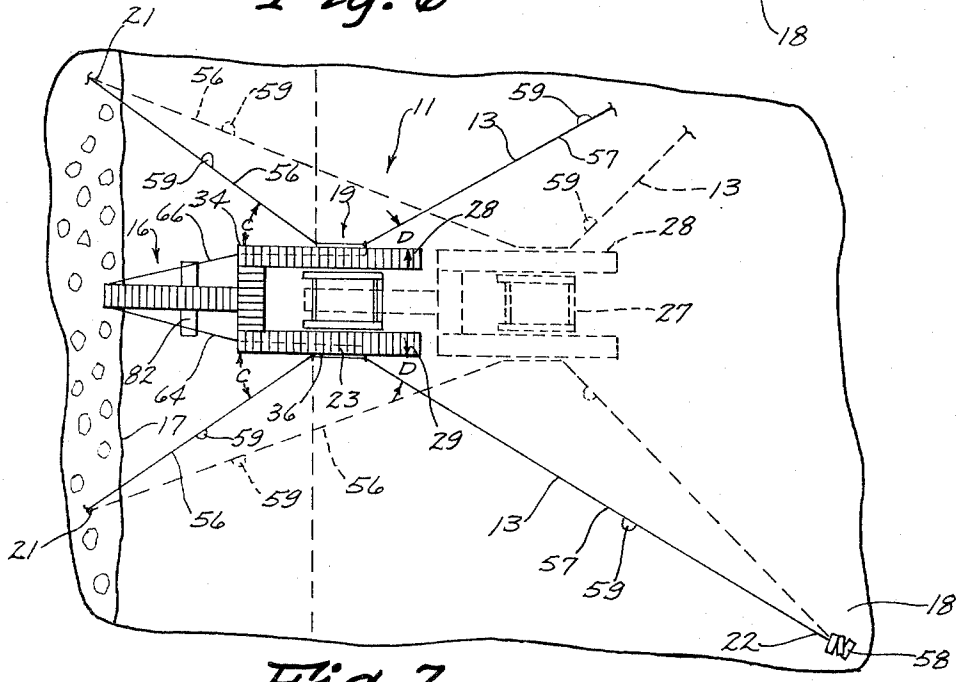


Fig. 7

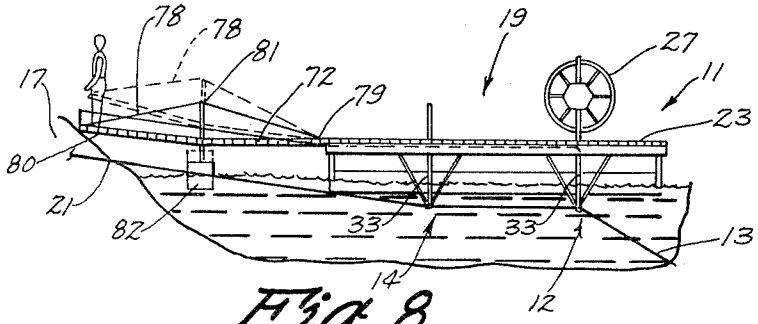


Fig. 8

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MOORING DEVICE FOR FLOATING BOAT HOIST

BACKGROUND OF THE INVENTION

This invention relates to a novel mooring device for floating equipment which device is especially useful on variable waters.

Man-made lakes provide much of this country with the only available water recreation. However, many of these man-made lakes were constructed specifically for flood control. Therefore, the water level in these lakes usually fluctuates widely from spring to fall.

Conventional docks and boat hoists which are anchored to the bottom of these lakes must be moved periodically to be useful to the owners thereof. Even floating docks must be moved inwardly or outwardly as the waters rise and fall. Methods and equipment for moving docks and boat hoists of these types, as well as other floating equipment, are cumbersome and require much manual labor.

The mooring device of this invention solves the problems raised above and is simple, inexpensive, and facilitates moving large floating structures with minimal effort and time by a single man.

SUMMARY OF THE INVENTION

This invention relates to a device for selectively mooring floating equipment in a body of water proximate the shore comprising a first means mounted on each of two opposing sides of the floating equipment for releasably securing a chain therein and for guiding a chain therethrough; at least one guide means mounted on each of the opposing sides of the floating equipment and aligned with the first means for guiding a chain therethrough; means operable from the shore for releasing the chains in the first means; and chains securable at their respective ends to the shore and to the bottom of the body of water, each of the chains passing through one of the first means and one of the guide means. Also included as a part of the invention herein is a novel walkway connecting the floating equipment with the shore of the body of water.

It is a primary object of this invention to provide a novel, yet simple, mooring device for floating equipment whereby the floating equipment can be readily relocated on variable waters.

A further object of this invention is to provide a novel walkway linking the floating equipment with the shore line.

Further objects will become apparent from reading the specification and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a floating boat hoist secured approximate the shore line of a body of water by the novel mooring device of this invention.

FIG. 2 is an enlarged top view of the guide means taken along line 2—2 of FIG. 1.

FIG. 3 is an enlarged top view of the first means taken along line 3—3 of FIG. 1.

FIG. 4 is a cross-sectional view of the first means taken along line 4—4 of FIG. 3 and showing the chain in an engaged position.

FIG. 5 is a cross-sectional view of the first means taken along line 5—5 of FIG. 4.

FIG. 6 illustrates the placement of the chains and, additionally, illustrates how the floating dock can be moved relative to the shore line.

FIG. 7 is a plan view illustrating the placement of the chains and, in phantom, indicating the relative movement of the boat hoist as the waters in a lake flucuate.

FIG. 8 is a side view of the boat hoist with the walkway in a lowered position.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, the device for selectively mooring floating equipment is indicated generally at 11 in FIGS. 1 and 6 – 8. This device 11 is comprised of first means 12 for releasably securing chains 13 therein and for guiding the chains 13 therethrough and guide means 14 aligned with the first means 12 and spaced apart therefrom. Means 16 are provided for releasing the chains 13 secured in the first means 12; said means 16 being operable from the shore 17. The chains 13 are securable at their respective ends to the shore 17 and the bottom 18 of the body of water.

More specifically, the device 11 of this invention is utilized to selectively moor floating equipment 19. The chains 13 each pass through a first means 12 and a guide means 14 and are anchored, at their respective ends 21 and 22, to the shore 17 and the bottom 18 of the lake. When the water level fluctuates, the floating equipment 19 can be moved readily by releasing the first means 12 and moving the equipment 19 inwardly or outwardly with a gentle push or pull. The chains 13 remain secured at their respective ends 21 and 22 during this moving operation.

The device 11 of this invention can be utilized with most floating equipment 19 such as floating docks, floating boat and/or plane hoists, diving rafts etc. Specifically shown in FIG. 1 is a floating boat hoist 23. The boat hoist 23 comprises a U-shaped platform 24 supported on styrofoam or the like floatation blocks 26. A hoist mechanism 27 is suspended between the legs 28 and 29 of the U-shaped platform 24 and is utilized to lift boats from the water. Rubber bumpers 31 are provided near the open end 32 of the U-shaped platform 24 to prevent boats from being damaged against the sides of the platform 24.

The hoist mechanism 27 (FIG. 1) is preferably supported from struts 33 depending from the U-shaped platform 24, the struts 33 being positioned proximate the outside edges of the legs 28 and 29 of the U-shaped platform 24. By supporting the weight of the hoist mechanism 27 and the boat supported thereby on the outside of the platform, stability is built into the boat hoist 23.

A first means 12 (FIGS. 1 and 7) is mounted on each of two opposing sides 34 and 36 of the floating equipment 19. Preferably, the opposing sides 34 and 36 are those sides designed to be substantially perpendicular of the shore. As shown in FIG. 1, the first means 12 are advantageously secured near the bottom of the struts 33 on opposing sides 34 and 36 of the boat hoist 23.

The first means 12 (FIGS. 3–5) are each comprised of a securement means 37 and an alignment means 38. The securement means 37 is generally formed from a flat sheet 39 or bar of metal or the like secured perpendicularly of the legs 28 and 29 of the platform 24. The

bar 39 has a keyhole slot 41 formed therethrough, preferably in an inverted position as shown in FIG. 5. The narrow portion 42 of the keyhole slot 41 has a width slightly wider than the depth (indicated at A in FIGS. 3–4) of a single link 43 of the chain 13. The width of the narrow portion 42 is, however, narrower than the width (indicated at B in FIGS. 3–4) of a link 43. Therefore, when a link 43 is retained in the narrow portion 42 of the keyhole slot 41, the adjacent link 43 abuts the bar 39 thereby holding the chain 13 and the first means 12 in rigid engagement.

The wide portion 47 of the keyhole slot 41 is slightly wider than the width B of a link 43 of the chain 13. Preferably, the wide portion 47 is of a circular configuration as shown best in FIG. 5.

The bar 39 is suspended between the aligning members 44 and 46 (FIGS. 3–5). A rod 48 is rigidly secured as by welding to the upper portion of the bar 39. The upper end 49 of the rod 48 terminates in a hook 51 (FIG. 1). The bar 39 can be raised vertically by pulling upwardly on the hook 51. In the raised position, the wide portion 47 of the keyhole slot 41 is aligned with the aligning members 44 and 46 and the chain 13 can pass freely through the slot 41. The bar 39 is, however, normally in the lowered position wherein the narrow portion 42 of slot 41 is aligned with the aligning members 44 and 46. The bar 39 is forced into this position by the weight of this bar 39 and preferably is aided by a coil spring or the like (not shown). The bar 39 is held in position horizontally by the chain 13.

The aligning members 44 and 46 are rigidly mounted on opposing sides 34 and 36 of the boat hoist 23 with the bar 39 suspended therebetween. The aligning members 44 and 46 are substantially parallel of the opposing sides (FIGS. 1–5) 34 and 36 of the boat hoist 23 and are normally aligned with the narrow portion 42 of the keyhole slot 41. Each of the aligning members 44 and 46 is hollow and of substantially frustoconical configuration. The smaller openings 52 face each other through the keyhole slot 41.

The guide means 14 also generally comprise a pair of hollow frustoconical aligning members 53 and 54. These aligning members 53 and 54 are secured to opposing sides 34 and 36 of the boat hoist 23 and are aligned with the first means 12. The aligning members 53 and 54 can be spaced apart as shown in FIG. 2 or they can abut each other thereby forming a single unit (not shown).

The guide means 14 and the first means 12 are spaced apart as shown in FIG. 1 and are aligned with each other. With the chains 13 in place in the first means 12, the chains 13 parallel the sides 34 and 36 of the boat hoist 23.

The chains 13 are disposed on opposing sides 34 and 36 of the boat hoist 23; each of the chains extends through a first means 12 and a guide means 14. The ends 21 and 22 of the chains 13 are secured, respectively, to the shore 17 and the bottom of the lake. As shown best in FIG. 7, the portions 56 of the chain 13 between the shore 17 and the guide means 14 form acute angles (indicated at C) with the sides 34 and 36 of the boat hoist 23 carrying the guide means 14 and the first means 12, those sides 34 and 36 being generally perpendicular of the shore 17. The portions 57 of the chain 13 between the first means 12 and the other ends 22 of the chain 13 also preferably form acute angles (indicated at D) with the sides 34 and 36 of the boat hoist 23.

The chains 13 can be anchored to the bottom 18 of the lake with cement blocks 58 (FIGS. 6 and 7) or the like. The anchors formed in this manner should weight between 300 and 1,200 pounds. The chains 13 can be anchored to the shore 17 in any convenient manner.

Rubber snubbers 59 (FIG. 7) can advantageously surround several links 43 of the chain 13 to absorb shock in the chains 13 on rough waters. These snubbers 59 also absorb some of the shock when there is excessive movement on the platform 24.

The means 16 operable from the shore 17 for releasing the chain 13 in the first means 12 is shown in FIG. 1. This means 16 comprises a first pulley 61 disposed above each of the securement means 37, and more specifically, directly above the upper end 49 of the rod 48. The pulley 61 is rotatably secured to the boat hoist 23. Second pulleys 62 are rotatably secured proximate the forward end 63 of the boat hoist 23. More than one second pulley 62 can be utilized if the floating equipment 19 is excessively large. Two lines 64 and 66 are provided, each of the lines 64 and 66 being secured at one end 67 to the upper end 49 of the rod 48. The lines 64 and 66 travel over a first pulley 61 and a second pulley 62 and are secured, at the other end 68, proximate the shore 17. As shown in FIG. 1, posts 69 and 71 can be constructed at the end of the walkway 72 for securing the lines 64 and 66 thereto.

Conventional walkways (not shown) can be utilized with the boat hoist shown in FIG. 1. However, on variable waters, conventional walkways must be resecured to the bank each time that the boat hoist 23 is moved.

Accordingly, a novel walkway 72 (FIGS. 1 and 8) has been designed. This walkway 72 comprises a deck surface 73 formed in two sections 74 and 76. These sections 74 and 76 are hingeably secured together and the section 76 adjacent the boat hoist 23 is rotatably secured thereto at the forward end 63 of the boat hoist 23. Means 77 are provided for rotating one section 74 relative to the second section 76 and securing that section 74 in place. The means 77 can comprise a line 78 secured between opposite ends 79 and 80 of the walkway 72. The line 78 passes through a retainer 81 disposed above the hinged joint between the deck sections 74 and 76. The forward section 74 can thereby be raised and secured in place. By utilizing this hinged walkway 72, the walkway 72 can be utilized with the steep banks found on many man-made lakes or the more gradual banks in natural lakes.

The walkway 72 is supported by a single floatation member 82 attached to the deck surface 73 below the hinged joint between deck sections 74 and 76. This floatation member 82 is designed to maintain the forward end 80 of the walkway 72 above the bank when the walkway 72 is carrying no load. When the walkway 72 is loaded (FIG. 8) the floatation member 82 allows the walkway 72 to touch the bank.

OPERATION

When placing the boat hoist 23 in the water for the first time, the chains 13 are first threaded through the guide means 14 and the first means 12. The ends 21 of the chains 13 are secured to the shore 17 above the

high water line and spaced outwardly of the boat hoist **23**. The other ends **22** of the chains **13** are weighted with cement blocks **58** and secured to the bottom **18** of the lake below the low water line. By releasing the first means **12**, the boat hoist **23** can be placed at any desired position.

Although a preferred embodiment has been described, it is to be remembered that various modifications may be made without departing from the invention as described in the appended claims.

I claim:

1. A device for selectively mooring floating equipment in a body of water proximate the shore of the body of water comprising:

a first means mounted on each of two opposing sides of the floating equipment for releasably securing a chain therein and for guiding a chain therethrough;

at least one guide means mounted on each of said opposing sides of the floating equipment and aligned with said first means for guiding a chain therethrough;

means operable from the shore for releasing said chains in said first means; and

chains securable at their respective ends to the shore and to the bottom of the body of water, each of the chains passing through one of said first means and one of said guide means.

2. The device of claim **1** wherein said first means and said guide means are mounted on the two opposing sides of the floating equipment which are designed to be substantially perpendicular of the shore.

3. The device of claim **2** wherein each of said first means comprises:

securement means having a keyhole slot formed therethrough, the narrow portion of said slot having a width slightly wider than the depth of a single link of said chain and said wide portion of said slot having a width slightly wider than the width of a single link of said chain, said securement means being movable vertically; and

alignment means secured to said floating equipment and extending outwardly on both sides of said securement means for aligning said chain with said keyhole slot; said alignment means disposed substantially parallelly of said opposing sides of the floating equipment and normally aligned with said narrow portion of said keyhole slot.

4. The device of claim **3** wherein said means operable from the shore for releasing said chains comprises:

a first pulley disposed above each of said securement means and secured to said floating equipment;

at least one second pulley secured to said floating equipment between the shore and said first pulley;

two lines, each of said lines being secured, at one end, to one of said securement means and traveling over a first pulley and a second pulley and secured, at the other end, proximate the shore whereby, said securement means can be raised vertically by pulling said lines from the shore to align the wide portion of the keyhole slot with the openings in said aligning members thereby allowing said chains to pass freely through said keyhole slot.

5. The device of claim **4** wherein said alignment means comprises a pair of aligning members of hollow, substantially frustoconical configuration, having the smaller openings facing each other through said keyhole slot.

6. The device of claim **5** wherein each of said guide means comprises a pair of aligning members of hollow, substantially frustoconical configuration having the smaller openings facing each other and aligned with said first means.

7. The device of claim **6** wherein said securement means is a substantially flat sheet having a keyhole slot formed therethrough, said keyhole slot being in an inverted position.

8. A floating boat hoist comprising:

a U-shaped floating platform;

a boat hoist mechanism suspended from the legs of said U-shaped floating platform; and

a device for selectively mooring said floating platform comprising:

a first means mounted on each of two opposing sides of the floating platform for releasably securing a chain therein and for guiding a chain therethrough;

at least one guide means mounted on each of said opposing sides of the floating platform and aligned with said first means for guiding a chain therethrough;

means operable from the shore line for releasing said chains in said first means; and

chains securable at their respective ends to the shore and to the bottom of the body of water, each of the chains passing through one of said first means and one of said guide means.

9. The floating boat hoist of claim **8** wherein a floating walkway is rotatably secured to the base of said U-shaped floating platform, said floating walkway comprising:

a deck surface formed in two sections, said sections being hingeably secured together;

a floatation member attached to said deck surface and extending downwardly of said hinged joint in said deck surface;

means for rotating and securing in place one of said deck sections relative to said second deck section.

10. The floating boat hoist of claim **9** wherein each of said first means comprises:

securement means having a keyhole slot formed therethrough, the narrow portion of said slot having a width slightly wider than the depth of a single link of said chain and said wide portion of said slot having a width slightly wider than the width of a single link of said chain, said securement means being movable vertically; and

alignment means secured to said floating platform and extending outwardly on both sides of said securement means for aligning said chain with said keyhole slot; said alignment means disposed substantially parallelly of said opposing sides of the floating equipment and normally aligned with said narrow portion of said keyhole slot.

* * * * *