Aug. 9, 1966 C. W. KRAMLICH 3,265,024

BOAT LIFT

Filed June 14, 1965 2 Sheets-Sheet 1

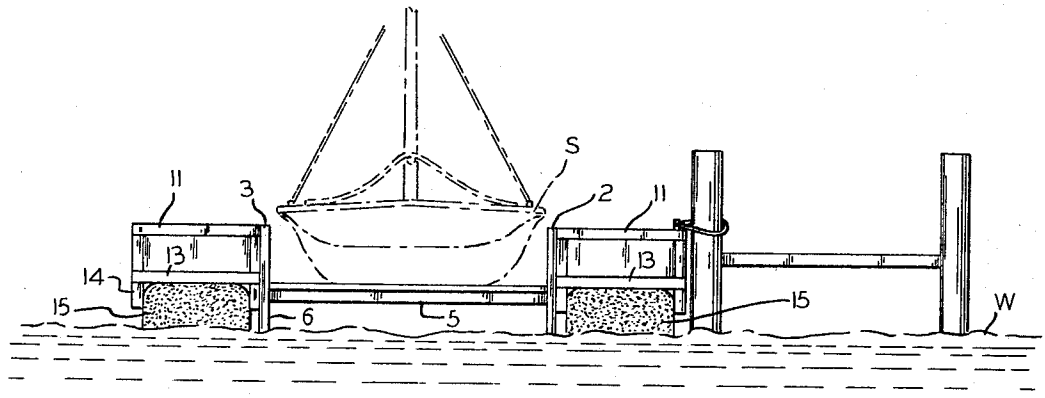


FIG. 1

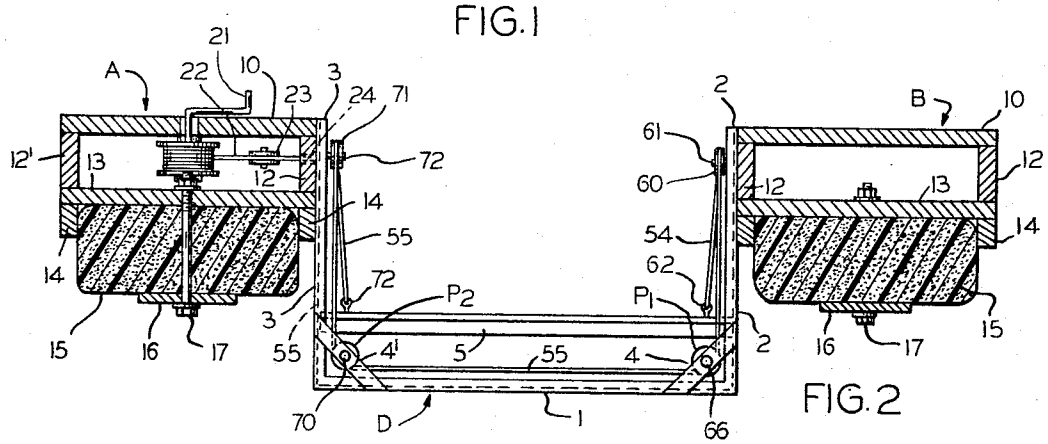


FIG. 2

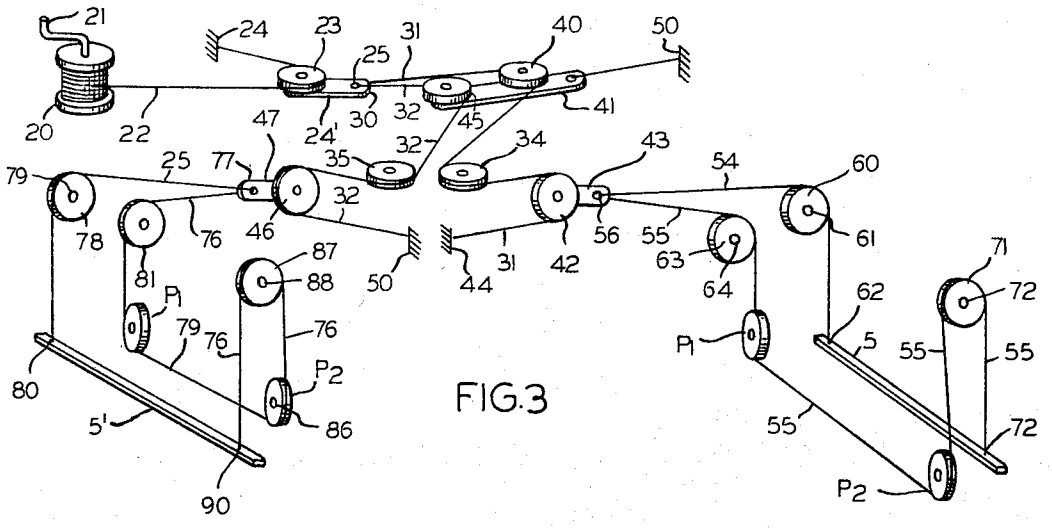


FIG. 3

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Aug. 9, 1966 C. W. KRAMLICH 3,265,024

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Filed June 14, 1965 2 Sheets-Sheet 2

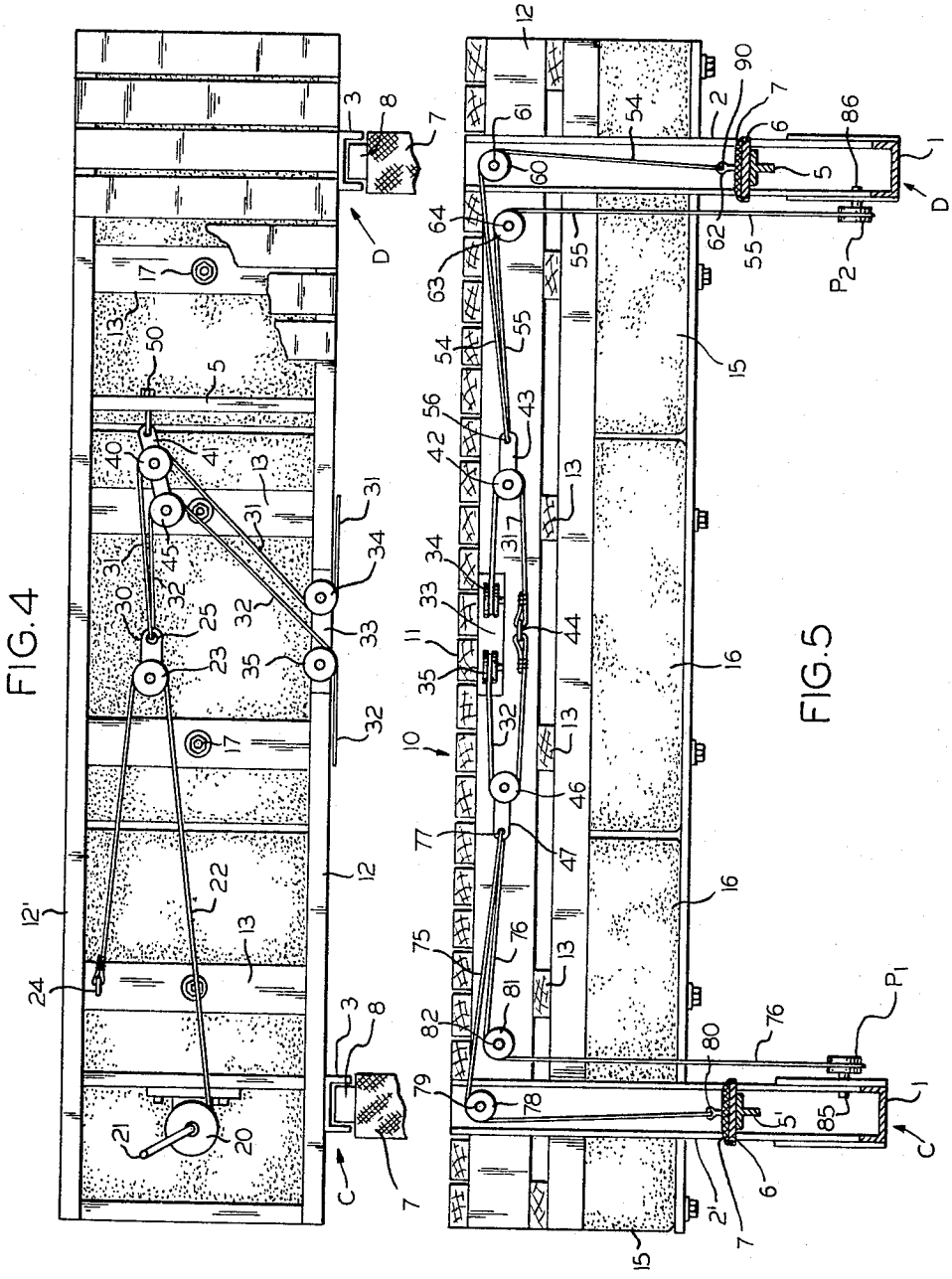


FIG. 4

FIG. 5

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BOAT LIFT

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This invention relates to improvements in a boat lift and more particularly to the mechanism for lifting a boat, in a floating dock, above the surface of the water in which the dock is floating.

It is an object of this invention to provide a pulley system which may be operated manually from a single point and which will elevate a boat in a substantially even rate throughout the length and width of the boat.

Another object is to provide a boat lifting cable and pulley system for a floating dock which is easily assembled, efficient in operation and may be maintained in efficient operation by any one, even though he may not be skilled.

In the drawings

FIG. 1 is an end view illustrating a floating dock moored to a permanent dock and supporting a sail boat (shown in broken lines) above the surface of the water.

FIG. 2 is an enlarged transverse sectional view of the floating dock shown in FIG. 1 with the boat lift lowered.

FIG. 3 is a diagrammatic view of the mechanisms for raising or lowering the boat lift.

FIG. 4 is a top plan view of one of the pontoons with portions removed showing some of the mechanisms for raising or lowering the boat lift.

FIG. 5 is a side view of pontoon and boat lift as seen from the right relative to FIG. 4.

The floating dock comprises two substantially parallel pontoons A and B connected in relatively spaced relation by means of U-brackets, C and D at each end of the floating dock, each of the brackets comprising a horizontal base channel iron 1 connected at one end to an upright channel iron 2 and at the other end to an upright channel iron 3.

The channel iron 2 is connected, at its upper end, in any suitable manner, to the pontoon B and the channel iron 3 is connected at its upper end to the pontoon A. Diagonal braces 4 and 4' are affixed to the base channel iron 1 and the upright channel irons 2 and 3 and serve to strengthen the U-shaped bracket and maintain the right angle relationship between the base and upright angle irons. They also serve as mounting elements for the pulleys P1 and P2.

Slidably mounted for vertical movement in the channels of the vertical channel irons 2 and 3 of each bracket C is a horizontal T shaped boat lift bar 5 provided with a plate 6 and pad 7 for contact with the bottom of a boat. As clearly indicated in FIG. 4, the ends 8 of the boat lift bars 5 extend into the channel of the uprights 2 and 3 and are thereby guided in their vertical movement.

Each pontoon has a deck 10 formed of planks 11 laid transversely of the pontoons and resting on and anchored to relatively spaced side boards 12 and 12'. Spanning the space between side boards is a series of relatively spaced spanners 13 secured to the bottom edges of the side boards 12. Guide bars 14 extend longitudinally of the pontoon in relatively spaced relation to each other and are secured to the spanners 13. So-called "styrofoam" pads 15 are positioned between guide bars 14 and are secured to the spanners 13 by means of the clamping board 16, bolts 17 extending through the pads 15 and into the spanners 13. The pads 15 serve as floats which support the weight of the floating dock and a boat S raised above the surface W of the water.

The mechanism for raising and lowering the boat, supported by the lift bars 5, comprises a pulley system, shown diagrammatically in FIG. 3, is controlled by the manually operated reel 20 disposed beneath the deck 10 of one of the pontoons and having its crank 21 above the deck for easy access. A cable 22 extends from the reel 20, about a pulley 23 and is anchored at its end to the side board 12' of the pontoon at 24. The pulley 23 is rotatably carried by a link 24' at one end thereof, the opposite end being provided with an aperture 25 which receives corresponding ends 30 of cables 31 and 32, the ends 30 being secured to the link 24. As will be seen in FIGS. 4 and 5, the side board 12 is slotted at 33 and two pulleys 34 and 35 are rotatably mounted therein in relatively spaced relation. Cable 31 passes around pulley 40 rotatably mounted on link 41, over pulley 34, over pulley 42 rotatable on link 43 and is anchored at 44 on side board 12.

Cable 32 passes over pulley 45, rotatably mounted on link 41, over pulley 35, over pulley 46, rotatably mounted on link 47 and is anchored at 44 on the side board 12. Link 41 is anchored at 50 to the cross bar 51 secured to the side boards 12–12'.

Cables 54 and 55 are secured to the link 43 at 56. Cable 54 passes over the pulley 60, rotatably journalled on the upright channel 3 at 61, and extends downwardly to the eye bolt 62 which is suitably secured to one end of boat lift I-beam 5. Cable 55 passes over the pulley 63 which is rotatably journalled at 64 in the side board 12. The cable 55 then extends downwardly and passes around the pulley P1, which is rotatably journalled at 66 on the brace 4, then extends horizontally above in substantially parallel relationship to the base channel iron 1 of the U-bracket D and passes over the pulley P2, which is rotatably journalled at 70 on the brace 4' thence upwardly to the pulley 71 journalled at 72 in the upper end of upright channel 3, thence around pulley 71 and downwardly to the eye bolt 72 secured to the end of the boat lift channel 5 opposite that to which the eye bolt 62 is attached.

Cables 75 and 76 are secured at 77 to the link 47. Cable 75 passes over pulley 78, journalled at 79 on the upright channel 2' of the bracket C, and then downwardly to the eye bolt 80 which is secured to I-beam boat lift 5' at one end thereof. The cable 76 passes over pulley 81, rotatably journalled in the side board 12 at 82, thence downwardly and about pulley P1 which is rotatably mounted at 85 on the bracket 5. The cable 76 then extends horizontally in substantial parallelism to the base channel iron 1 of the U-bracket C to the pulley P2, journalled at 86 on the brace 4 thence upwardly and over the pulley 87 journalled at 88 in the side board 12. Cable 76 then passes downwardly and is attached at 87 to the end of the boat lift 5' by means of an eye-bolt 90.

The boat lifting mechanism operates as follows: Assuming a boat, preferably a flat bottomed boat as shown in FIG. 1, is placed in the floating dock, as indicated in FIG. 1, the reel 20 is rotated, by means of the handle or crank 21, in a clockwise direction, relative to FIG. 4. This winds the cable 22 on the reel and through the link 24, cable 31, links 41–43 and cables 54 and 55 raises the boat lift 5 vertically. Simultaneously, the cable 22 through link 24, cable 32, links 41–47 and cables 75 and 76, raises the boat lift 5', vertically. Thus, when the boat lifts 5 and 5' contact the bottom of the boat, the boat is raised above the surface of the water.

Conversely, when it is desired to lower the boat, the reel 20 will be rotated counter-clockwise to thereby permit the boat lifts 5–5' to move vertically downward.

From the foregoing disclosure, it is apparent that I have provided a floating dock with simple, efficient mechanism comprising a manually operable pulley system for raising or lowering a boat with reference to the surface of a body of water.

It is also apparent that the floating dock may be easily transferred from place to place and the mechanism for

raising and lowering a boat may be manually operated from a single point of power application and that the boat will at all times be, throughout its length and breadth, raised and lowered at a substantially constant rate.

Having disclosed my novel improvement, in a floating dock, a boat lift, the appended claims set forth what I believe to be my novel invention.

I claim:

1. In a floating dock comprising two relatively spaced pontoons, the combination with a pair of relatively spaced U-brackets connecting said pontoons in spaced relation, said brackets each comprising a substantially horizontal bottom channel iron having at each end a vertically disposed channel iron extending upwardly and connected at its upper end with an adjacent pontoon, the channel side of the vertical channel iron of each bracket facing each other and jointly serving as a guide, of a boat lift bar disposed above each of said bottom channel irons and having its ends slidably disposed in a channel of an adjacent vertical channel, and a manually operable pulley and cable system mounted on one of said pontoons and comprising a manually operated reel, a cable to be wound on said reel and controlling two second cable systems simultaneously, one associated with one of said boat lift bars and the other associated with the other of said boat lift bars, each of said second cable systems including a first cable connected with one end of one of said boat lift bars and a second cable connected with the other end of said one of said boat lift bars.

2. In a floating dock comprising two relatively spaced pontoons connected by a pair of relatively spaced U-brackets, each comprising a substantially horizontal bar having at each end a channel iron extending vertically upward and connected with an adjacent pontoon and having their respective channels facing each other, the

combination with a boat lift bar extending between the vertically disposed channel irons associated with each of said horizontal bars, each end of said boat lift having end slidably disposed in corresponding channels of said vertically disposed channel irons of a cable and pulley system, a manually operable reel on one of said pontoons, said system including a cable controlled by said reel and in turn controlling two cable and pulley mechanisms, simultaneously, one of cable and pulley mechanisms connected to one of said boat lift bars and the other of said cable and pulley mechanisms connected to the other of said boat lift bars.

3. In a floating dock comprising a pair of relatively spaced pontoons, a pair of U-brackets in relatively spaced relation longitudinally of said pontoons, the arms of said U-brackets secured to said pontoons and extending vertically upward, the bases of said U-brackets being disposed relative to said pontoons, whereby when said dock is floating, said bases are beneath the water surface, the arms of each of said brackets cooperatively serving as guides, the combination with a boat lift bar extending horizontally between the cooperating arms of each U-bracket and guided thereby for vertical movement of a cable pulley system for raising and lowering said boat lift bars in unison, said cable system including a manually operable reel on one of said pontoons, a cable controlled by said reel, two cable and pulley mechanisms controlled by said cable simultaneously, one cable and pulley mechanism connected to one of said boat lift bars and the other of said cable and pulley mechanisms connected to the other of said boat lift bars.

No references cited.

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