Nov. 14, 1950 A. H. JONES 2,529,948

COMBINED HOIST AND DOCK

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Fig. 1

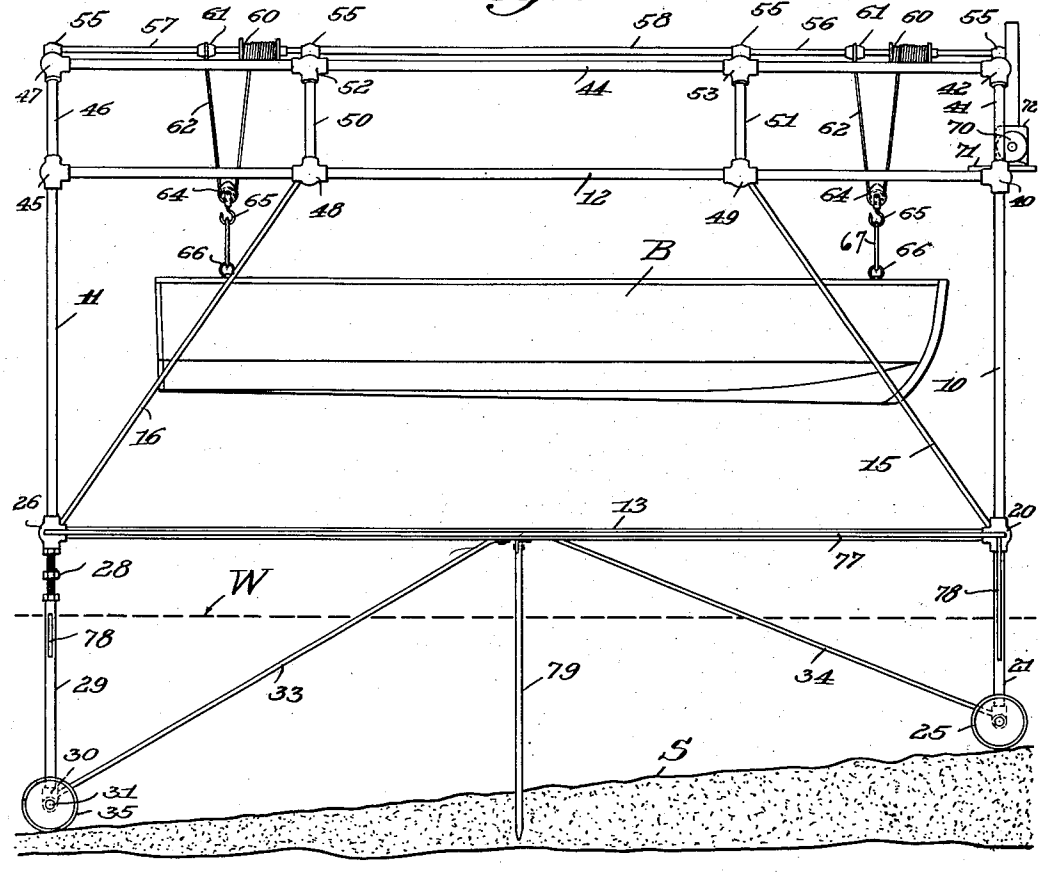


Fig. 2

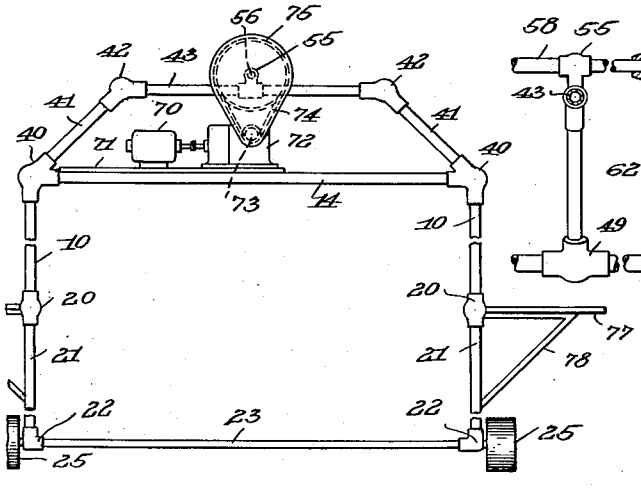
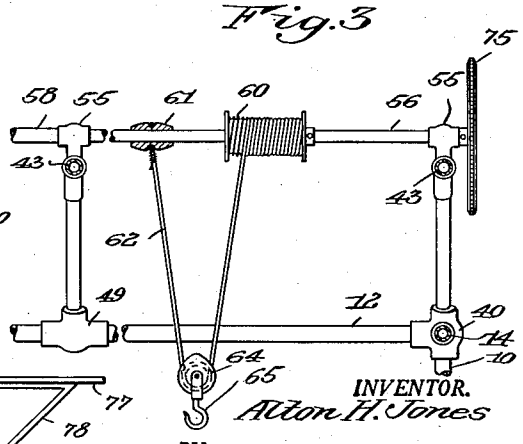


Fig. 3



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COMBINED HOIST AND DOCK

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2 Claims. (Cl. 61—67)

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The present invention relates to boat hoists and docks and more particularly to a combined dock and hoist for handling and housing small boats during the boating season.

If a small boat is not lifted out of the water at the end of each day's use, it will absorb water, and at the end of the boating season may easily weigh several hundred pounds more than it did at the start of the season. The extra weight naturally slows the boat down and requires extra power to drive the boat. A boat which is allowed to waterlog continuously, moreover, has a shorter life than a boat which is drawn out of the water when not in use.

For these reasons, careful small boat owners usually have some form of boat hoist provided alongside their piers for lifting their boats out of the water at the end of each day's use. In the wintertime, of course, the boat is stored indoors. Such hoists as have heretofore been built for small boats, however, have not been entirely satisfactory. They consists of some form of frame-work built on concrete foundations in the water and having winches and ropes, or similar equipment, either power or hand-operated, for lifting the boat out of the water. The hoists are subject to side sway; they have no leveling means, and the boats are tossed around more or less during raising or lowering them, risking injury to the user of the hoist, damage to the boat and its contents, and possible dumping of loose articles out of the boat into the water. The concrete foundations, moreover, especially in northern climates, are subject throughout the winter to the havoc of frost and ice. In bad seasons, the ice may actually lift the hoists off of their foundations. In any event, the foundations tend gradually to deteriorate and break up.

A primary object of the present invention is to provide a combined boat-dock and hoist for small boats which is mobile, and which can be moved into the water at the beginning of the boating season and moved out of the water at the end of the boating season.

Another object of the invention is to provide a mobile dock and hoist which is also capable of being easily dismantled for transportation.

A further object of the invention is to provide hoisting mechanism, which will maintain a boat on an even keel, that is, horizontal, as it is being raised out of or lowered into the water.

Still another object of the invention is to provide a combined dock and hoist which is simple in construction, which can be built at a very

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moderate cost, and which can be handled and operated very easily.

Other objects of the invention will be apparent hereinafter from the specification and from the recital of the appended claims.

In the drawings:

Fig. 1 is a side elevational view, showing a combined dock and hoist built according to one embodiment of this invention in use;

Fig. 2 is a rear elevation of this combined dock and hoist; and

Fig. 3 is a fragmentary detail view on an enlarged scale and partially in section, showing particularly the structure and mounting of one of the drums and sliding collars of the hoisting mechanism.

Referring to the drawings by numerals of reference, it is seen that the combined dock and hoist comprises a generally rectangularly shaped main frame, a movable truck supporting the main frame, and hoisting mechanism carried above the main frame. The main frame is made up preferably of standard iron pipe and consisting of the two parallel, spaced, vertical pipes 10 at the rear or on-shore end, the two parallel, spaced, vertical pipes 11 at the front or off-shore end, the two parallel, spaced, horizontal pipes 12, which connect pairs of pipes 10 and 11 at their upper ends, the two spaced, parallel, horizontal pipes 13, which connect pairs of pipes 10 and 11 at their lower ends, four or more spaced, parallel, horizontal pipes, which extend transversely between the pair of pipes 12, the two rear side braces 15, and the two front side braces 16.

Connected to the pipes 10 by suitable fittings 20, which also serve to connect the pipes 13 and braces 15 with pipes 10, are two vertical pipes 21. These are connected at their lower ends by suitable fittings 22 with a horizontal pipe 23 whose ends project beyond the sides of the frame work and serve to support the cast-iron wheels 25. Coupled to the pipes 11 by couplings 26, which also serve for connecting the braces 16 and pipes 13 to the pipes 11, are two turnbuckles 28. These turnbuckles fit at one end into the couplings 26 and at their opposite ends into two vertical pipes 29. The pipes 29 are connected by fittings 30 with a horizontal cross pipe 31 similar to the pipe 23, whose ends project beyond sides of the frame-work and serve as supports for the wheels 35. Angle-iron braces 33 extend diagonally between the pipe 31 and the pipes 13, being suitably connected at their opposite ends to both. Each of these braces may be made in two parts connected by a turnbuckle or

equivalent adjustable connection; and the two ends of each brace may be pivotally connected to pipe 13 and fitting 30, respectively. Thereby adjustment of the braces can be effected to accommodate the vertical adjustment of the offshore legs of the dock by the turnbuckles 28. Similar angle-iron braces 34 connect the pipe 23 with the pipes 13.

Suitable fittings 40 connect the pipes 10 with the pipes 12 and rear bracing pipe 14 and with two convergingly inclined pipes 41. The pipes 41 are connected at their upper ends by suitable fittings 42 with a horizontal pipe 43 that is parallel to pipe 14 and with horizontal pipes 44 that are parallel to pipes 12 and 13. Suitable fittings 45 connect the vertical pipes 11 with the pipes 12 and front bracing pipe 14 and with two converging pipes 46 similar to and parallel to, respectively, the two pipes 41. Suitable fittings 47 connect the pipes 46 with pipes 44 and with a horizontal pipe (not shown) that is parallel to the pipe 43. Suitable fittings 48 and 49 connect the pipes 12 with two pairs of pipes 50 and 51, respectively, which are arranged parallel to the pairs of pipes 41 and 46. Suitable fittings 52 and 53, respectively, connect the pipes 50 and 51, respectively, with the pipes 44 and with pipes that extend parallel to the pipe 43.

The pipe 43 and the three pipes which extend parallel to it carry four pillow blocks 55. Journaled in the two rear pillow blocks 55 is a shaft 56, and journaled in the two front pillow blocks 55 is a shaft 57. These two shafts are connected by a pipe 58 which is keyed to the adjacent ends of the two shafts. The shafts 56 and 57 and connecting pipe 58 constitute, in effect, therefore, a single shaft.

Keyed or otherwise secured to the shafts 56 and 57, respectively, are two identical cable drums 60. A collar 61 is associated with each drum 60. These collars are mounted on the shafts 56 and 57, respectively, to slide freely on those shafts. Each of the cables 62 is secured at one end to a collar 61 and at its opposite end to a drum 60. Each of the cables passes through a pulley-block 64 to which there is secured a hook 65. Each drum 60 is preferably provided, as shown, with a helical groove so that the cable associated therewith can more easily be wound thereon or unwound therefrom without fouling.

To lift a boat B out of the water, the hooks 65 are first engaged in links 67. These are connected to eyes 66 which are secured in the boat near its opposite ends. Then, the drums 60 are revolved to wind the cables 62 thereon. To lower the boat into the water again, the drums 60 are revolved in the opposite direction to unwind the cable therefrom. As the cables wind up on the drums or as the cables unwind from the drums, the sliding collars 61 move on the shafts 56 and 57 maintaining in each case a constant distance between the end of the cable which is secured to the collar and the end of the cable at the point of winding on or unwinding from the drum. Thus, the distance between the hooks 65 remains constant during the entire operation of either raising or lowering the boat. The result is that there is no forward or rearward or sideward sway of the boat; it maintains an even level throughout the whole of the raising or lowering operation. This is of marked advantage in the raising of a small boat particularly and is a great improvement over the prior art.

The drums may be either hand or power operated. In the construction shown, there is an electric motor 70 mounted on a suitable platform 71 which is secured to the rear pipe 14. This motor drives a gear reduction which is mounted in the housing 72, and the gear reduction drives a sprocket wheel 73 which is connected by a chain 74 with a sprocket wheel 75 that is fastened to the shaft 56. The motor 70 is reversible and it is push-button controlled to rotate the drums 60 in either direction.

Mounted at either side of the frame-work are cat-walks 77 which are supported from the pipes 29 and 21 by brackets 78. Each of the diagonal leg portions of the brackets 78 at the offshore ends of the dock may be made in two pieces connected by a turnbuckle or other suitable adjusting means; and the upper piece of each such diagonal leg or brace may be pivotally connected at its upper end to the horizontal leg of the bracket, which the lower piece of each such diagonal leg may be connected at its lower end to the related pipe 21. Thus, adjustment of the offshore brackets 78 may be made to maintain the cat-walks horizontal upon vertical adjustment of the offshore legs of the dock.

The dock and hoist of the present invention is adapted to be rolled into the water at the beginning of the boating season. It is rolled a sufficient distance off shore so that the depth of water W will be sufficient to permit the boat with which it is to be used to glide over the cross bar 23 without hitting it so that the boat can move freely in or out of the dock. The turnbuckles 28 are then adjusted to adjust the height of the off shore end of the dock to conform to the slope S of the river or lake bottom and to level up horizontally the shafts 56, 57 and other normally horizontal parts of the dock. The legs 79 which are pivoted to the undersides of the cat-walks 77 are then lowered to aid the brackets 78 to support these cat-walks. These legs are pointed at their lower ends to seat in the river or lake bottom.

At the end of each day's use the boat can be drawn out of the water and stored clear of the water overnight. The ends of the dock are completely open except for the cross pipes 23 and 31, and the cross pipes 14 and 43. If any painting or other repairs have to be made to the boat, this can readily be done, with the boat out of the water, by using the cat-walks 77. At the end of the season, the hoist is rolled out of the water on shore and the boat can be taken off and placed in storage.

While the invention has been described in connection with a mobile dock, certain features of the invention are capable of use in connection with stationary docks or boat-houses. Thus, pairs of drums and collars of the type described may be used on a hoisting shaft in a conventional boat-house or a conventional type hoist for raising or lowering a boat. The pair of sliding collars will maintain the boat level during raising or lowering.

It is to be understood that while the invention has been described in connection with a particular embodiment thereof, it is capable of further modification, and this application is intended to cover any variations, uses, or adaptations of the invention following, in general, the principles of the invention and including such departures from the present disclosure as come within known or customary practice in the art to which the invention pertains and as may be applied to the essential features hereinbefore

set forth and as fall within the scope of the invention or the limits of the appended claims.

Having thus described my invention, what I claim is:

1. A movable dock for temporary storage of a boat, comprising a framework open at both ends to permit a boat readily to be moved into or out of the dock between the sides of the framework, supporting means for the framework comprising two pairs of legs, one pair of legs being disposed at the forward end of the dock and the other pair of legs being disposed at the rear end of the dock, a wheel secured to the foot of each leg to permit rolling the dock into and out of the water, said forward pair of legs, at least, being vertically adjustable to compensate for the slope of the bottom on which the wheels rest, and hoisting mechanism mounted on the top of the frame including means attachable to a boat.

2. A movable dock for temporary storage of a boat, comprising a framework open at both ends to permit a boat readily to be moved into or out of the dock between the sides of the framework, two pairs of legs for supporting said framework, one pair of legs being disposed at the forward end of the dock and the other pair of legs being disposed at the rear end of the dock, a wheel secured to each leg at its lower end to permit rolling the dock into and out of water, each of the forward legs, at least, being vertically adjustable to compensate for the slope of the bottom on which the wheels rest, a shaft journalled in the upper part of said framework and extending longitudinally thereof, a pair of axially-spaced drums fixedly secured to said shaft, a collar associated with each drum and slidably mounted on the shaft, a pair of cables, each of which is secured at one end to one drum and at its opposite end to the collar associated with that drum, a pulley block carried by each cable, means secured to the two pulley blocks for attachment to opposite ends of a boat, respectively, and means for rotating the shaft to raise or lower a boat.

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