E. Turner,

Floating Dock.

No. 47,501. Patented Apl 25, 1865

Fig. 1.

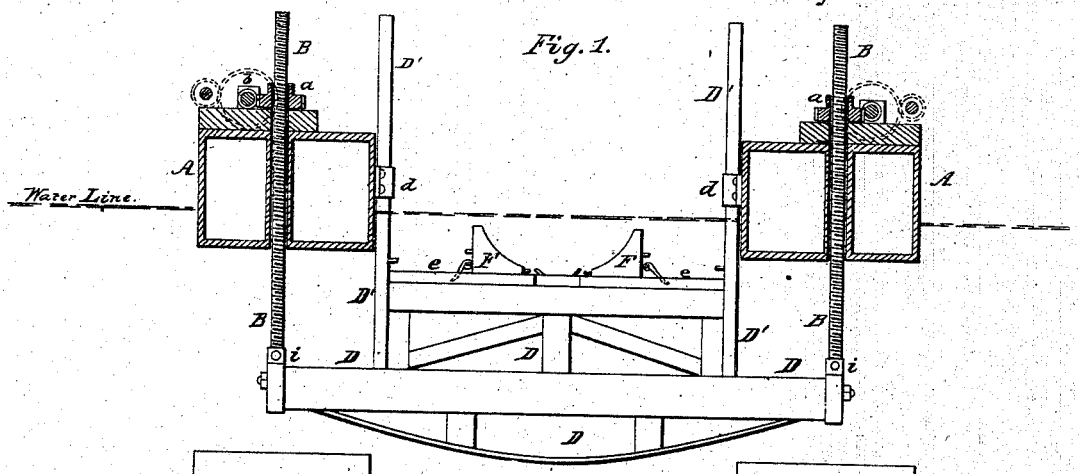
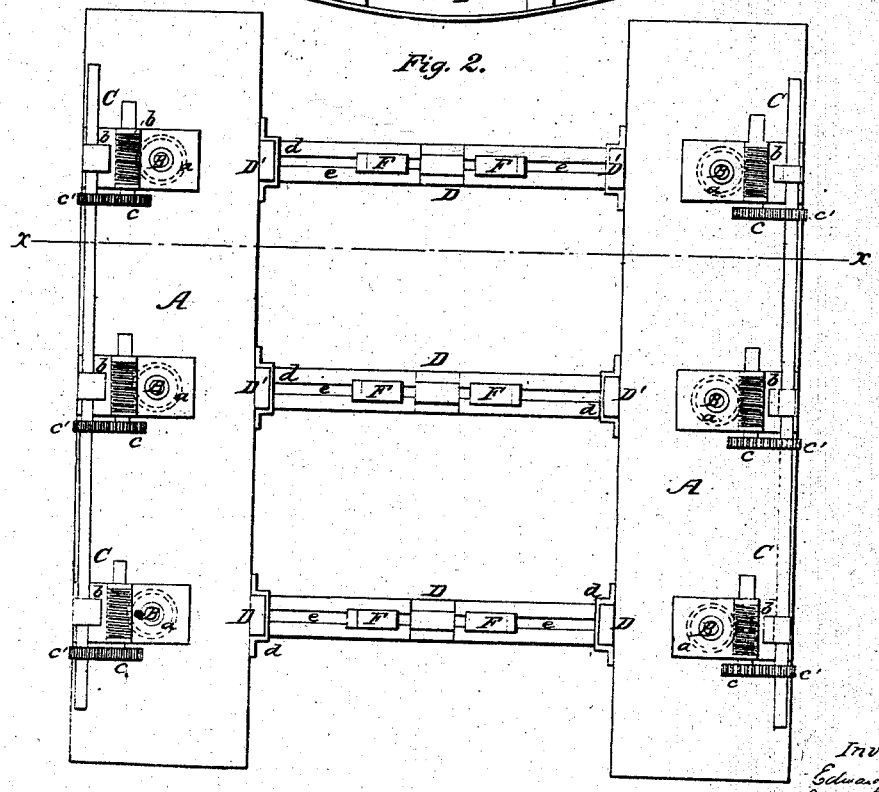


Fig. 2.



Witnesses.
P. J. Campbell.
E. Schuyler Jr.

Inventor.
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by his attys
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The drawing in this pate
is not in print.

UNITED STATES PATENT OFFICE.

EDWARD TURNER, OF BALTIMORE, MARYLAND, ASSIGNOR TO SIMON R. GOLIBART, OF SAME PLACE.

IMPROVED FLOATING-DOCK.

Specification forming part of Letters Patent No. **47,501**, dated April 25, 1865.

To all whom it may concern:

Be it known that I, EDWARD TURNER, of the city and county of Baltimore, State of Maryland, have invented a new and Improved Marine Dock; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical transverse section through the pontons, showing one of the supporting-frames and the contrivances for elevating and depressing it. Fig. 2 is a top view of the marine dock.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to certain novel improvements in floating-docks, which are intended for elevating vessels out of water for repairing them, or transporting them over bars or other shallow places into deep water.

The object of my invention is to avoid the liability of straining the hull of a vessel during the operation of elevating it from the water, and also to avoid the necessity of sinking the docks or pontons and then pumping out the water from them, for the purpose of elevating a vessel.

By my invention I am enabled to use the pontons for work-shops for the workmen employed upon the dock, and to elevate a vessel at pleasure and at any desired height, so that the men can have access to every part of the hull and a steady foundation upon which to stand while at work.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

A A are two pontons, which may be made of any suitable capacity, and which may be somewhat longer than the length of the largest vessel which they are capable of floating. These pontons may be made with flat bottoms or with keels, and they may be furnished with bulkheads. They should be of an uniform size and floating capacity, and they may be provided with all the facilities for propelling them through the water either singly or together. The decks of the pontons are flat, and upon these decks I propose to erect work-shops for the workmen who are engaged upon the dock. The sides of the pontons are flat and parallel to each other. Each one of the pontons is provided with a number of screw-shafts, B B, which extend down through the deck and hull, as shown in Fig. 1 of the drawings, and are suitably connected at their lower ends to a trussed frame or frames, as will be hereinafter described. Each one of the screw shafts B of both pontons passes through a nut, *a* which has teeth on its circumference that engage with a worm-screw, *b*. These spurred nuts and worm-screws are located upon the decks of the pontons, and they are rotated by means of spur-wheels *c c'* and shafts C C. Each ponton is provided with a shaft, C, extending past each one of the screws B, so that by turning this shaft all the screws which connect with it will be elevated or depressed simultaneously according to the direction in which the shaft is turned. It is important that the threads of the screw-shafts of both pontons be made of a uniform size, and also that the gearing which is used for communicating motion to said shafts from the longitudinal shafts C C be of a uniform size, so that when the two shafts C C are turned at the same speed their respective screw shafts will move at a uniform speed. The pinion-wheels C′ on the shafts C C are so applied thereto that they can be moved out of gear with the spur-wheels *c* on the shafts of the worm-screws *b* when it is desired to move the screw-shafts B independently of each other, for a purpose which will be presently described.

To the lower extremities of the screw-shafts B B of both pontons I suitably secure the frames D D D, which extend transversely beneath the pontons and at right angles to the length thereof. Each frame is suspended by two screw-shafts, which are directly opposite to each other, so that by elevating these two screws at a uniform speed the frame which is suspended by them will be elevated in a horizontal plane. Each one of the frames D is constructed of a braced beam or bridge and an elevated trussed frame-work, upon which the vessel, or a portion thereof, which is to be elevated is supported. Two vertical beams, D′ D′, also constitute a part of the main frame D and project up therefrom through staples *d d* on the sides of the pontons, so as to form guides for preventing the frame D from careen-

ing when a load is upon it and it is being elevated or depressed. The elevated portions of the frames D D D are each provided with ways *e e*, for receiving and guiding the laterally-movable chuck-blocks F F, which can be operated by means of pulleys and cords by persons standing upon the decks of the pontons. These blocks F are for the purpose of chucking or steadying a vessel when mounted upon the elevators or frames D. In conjunction with these steadying-blocks, chain-stays may be employed for assisting in steadying the vessel when it is in the dock. Such chains may be attached to the vertical guides D′ D′, or to the pontons, whichever way may be found most convenient.

The frames D are attached to their respective pairs of screw-shafts by means of bolts *i i*, which, after being inserted in place, have keys passed through their ends for preventing them from casual displacement. These frames may be permanently secured to their elevating-screws, but I prefer to make the attachment as above stated for the reason that the frames can all be detached from their screws and stowed away upon the pontons when it is desired to transport the dock from one place to another. By sending divers beneath the pontons they can easily make the connections of the frames with their shafts. The screw-shafts B B should be of such length as to allow the uppermost horizontal beams of the frames D to be depressed beneath the surface of the water sufficiently far to pass freely beneath the keel of the largest vessel which the pontons are capable of floating; and the vertical guides D′ D′ should be about as long as the screw-shafts, so that when the frames D are depressed to their fullest extent these beams will not slip out of their staple-guides. The screw-shafts B B may be arranged very close together, according to their strength or number of frames D which it is found necessary to use, and in order to bring the weight of the load which is to be lifted directly in the center of the width of each ponton these screw-shafts are arranged as shown in the drawings.

When it is desired to elevate a vessel by means of my floating-dock, the frames D D D are depressed a sufficient distance to admit of their passing beneath the keel of the vessel. The dock is now floated up to the vessel and the frames brought beneath the same, or the vessel may be floated between the pontons As the keel of a vessel is somewhat curving, it will be necessary to adjust the frames D to its bottom before commencing to elevate it. This may be readily done by disengaging the spur-wheels *c′* on the shafts C C from those on the worm-shafts *b b*, and turning the screws B B until the frames are each brought up against the keel of the vessel, after which the spur-wheels *c′* are again moved in gear with the spurs and power applied to turn the two shafts C C at a uniform speed, so as to elevate the frames D simultaneously, and thus raise the vessel which is supported upon them.

It will be seen from the above description of my floating-dock that I am enabled to elevate a vessel by means of power employed upon the decks of the pontons instead of first filling the pontons with water in order to sink them beneath the vessel to be raised and then pumping out the water to bring the whole to the surface again.

The great object of my invention is to afford a firm support for every part of a vessel which is being raised out of the water, so that its own weight will not cause it to strain any portion of the hull or the timbers thereof. This can only be done practically by means substantially as I have shown in the above description.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. So constructing a floating-dock that a vessel may be raised bodily out of water and suspended between floats or pontons upon vertically-adjustable frames or elevators, substantially as described.

2. The use of vertically-adjustable frames D D, in combination with pontoons A A, and mechanism applied to these latter which is adapted for adjusting the frames independently of each other, or simultaneously, substantially as described.

3. The employment of guides D′ D′, in conjunction with the elevating-frames D D and floats A A, substantially as described.

Witness my hand in matter of my application for a patent for improvement in floating-docks.

EDWD. TURNER.

Witnesses:
R. T. CAMPBELL,
E. SCHAFER.