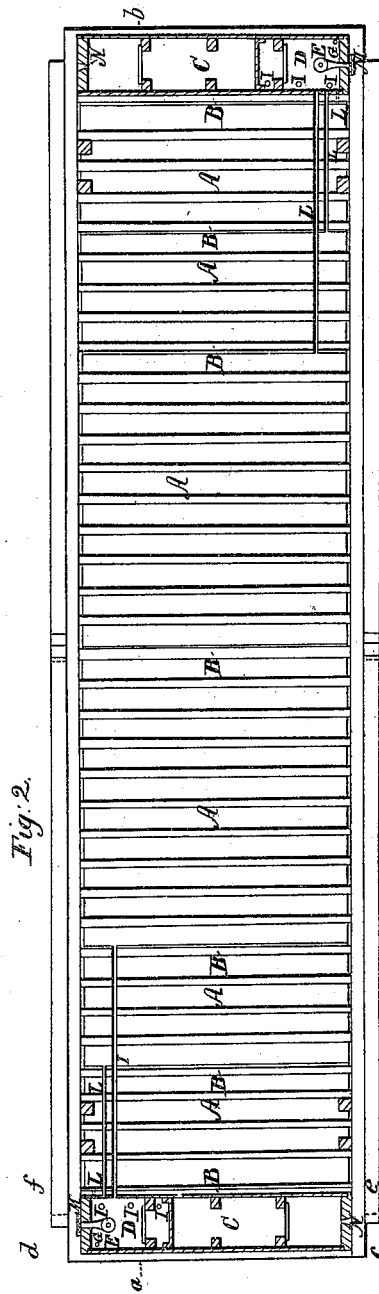
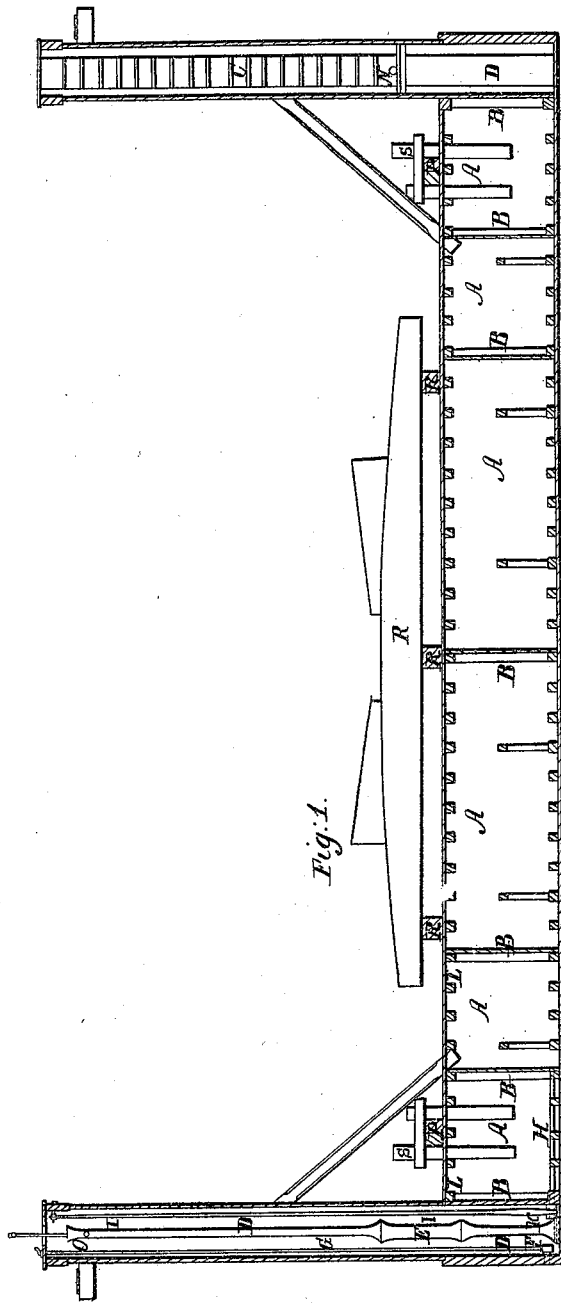


W. Thomas.
Floating Dock.

No. 1,009.

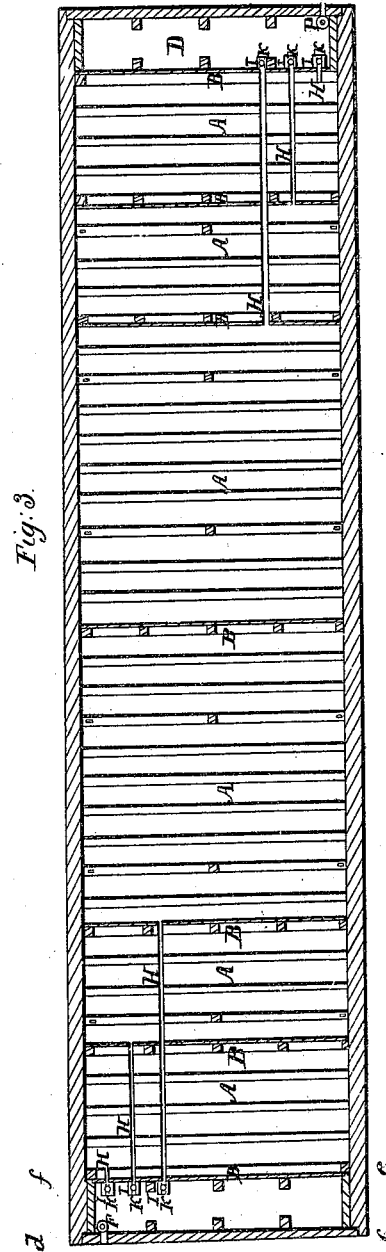
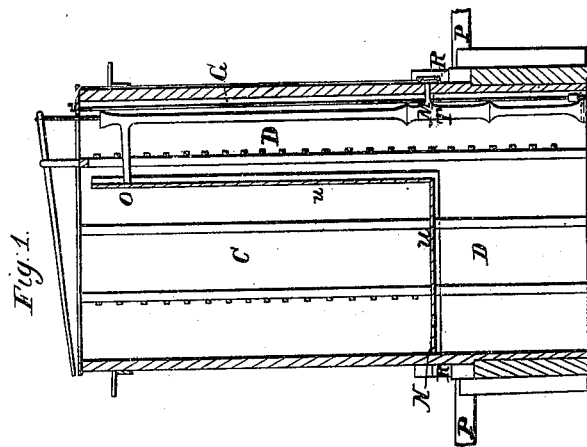
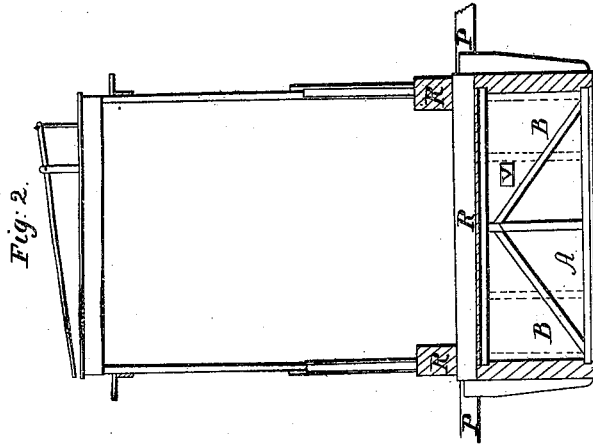
Patented May 19, 1840.



N. Thomas.
Floating Dock.

No. 1,604

Patented May 19, 1840.

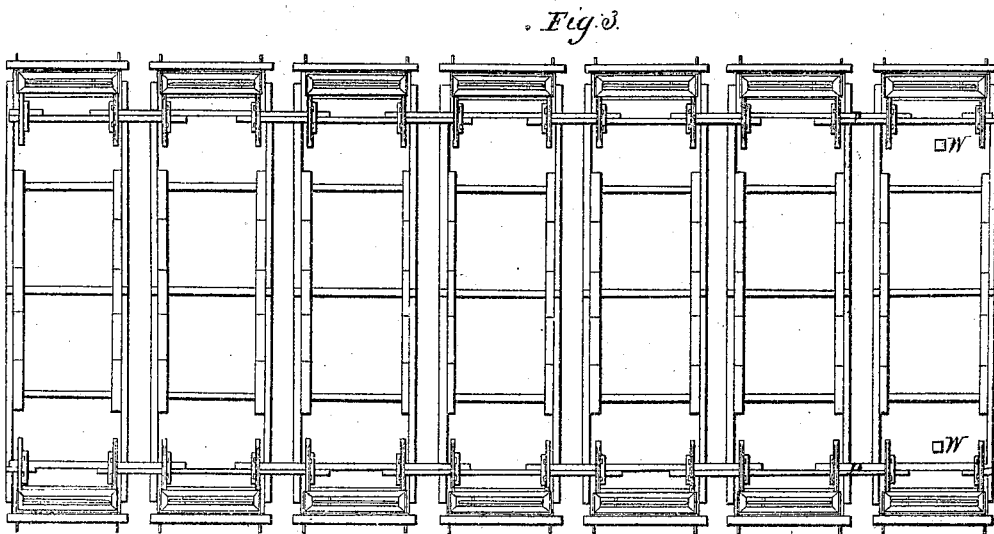
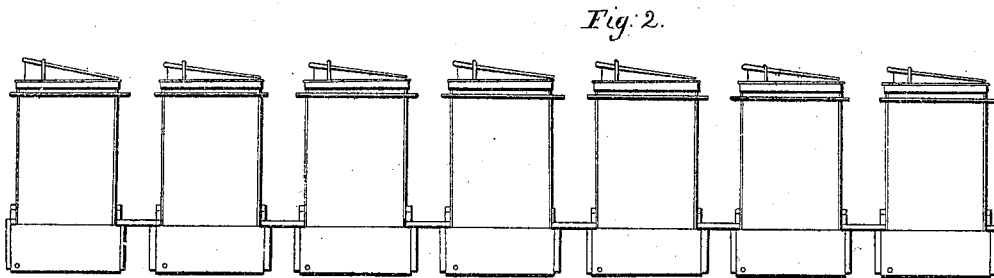
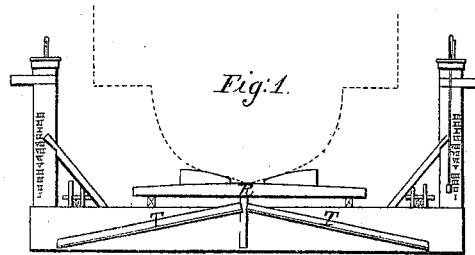


Sheets, 3 Sheets.

W. Thomas.
Floating Dock

N^o 1,609.

Patented May 19, 1840.



UNITED STATES PATENT OFFICE.

WM. THOMAS, OF ST. LOUIS, MISSOURI.

FLOATING DRY-DOCK.

Specification of Letters Patent No. 1,609, dated May 19, 1840.

To all whom it may concern:

Be it known that I, WILLIAM THOMAS, of the city of St. Louis and State of Missouri, have invented a new and Improved
5 Mode of Constructing and Using the Improved Floating Dry-Dock as patented to James H. Peck, Robert Wash, William Thomas, and John D. Coalter by Letters Patent dated March 26, 1834; and I do
10 hereby declare that the following is a full and exact description.

My dock consists of seven distinct floats of equal dimensions and all constructed in the same manner and are represented by
15 plates I, II, III, with references accompanying this description and making a part of it, viz:

Plate I, Figure 1, is an interior side view of a single float with upright trunks, cradle
20 timbers R, and blocks upon which the boat or vessel rests when raised, diagonal braces T, and king-posts, attached to the sides of the floats by dowels and firmly bolted, these braces are intended to give additional
25 strength to the sides of the floats and to throw a portion of the weight of the boat or vessel from the center to the ends of the float; Fig. 2, a side view of the dock formed by the connection of seven floats by means
30 of string timbers placed lengthwise with the dock; Fig. 3, a view of the top and deck of the dock, with the connecting timbers P, position of the cradle timbers R top of the upright trunk and stage on the outside of
35 them for men to stand upon to work the pumps. Plate II, Fig. 1, is an interior side view of a single float with references; Fig. 2, the deck frame of a single float with references; Plate III, Fig. 1, is an interior side
40 view of an upright trunk and end of the float with references; Fig. 2, exterior view of that portion of the trunk above the deck of the dock and facing toward it, as also the frame work and plank of that part extend-
45 ing from the deck to the bottom of the float forming one of the bulkheads, which divide the float into several chambers; Fig. 3, a view of the bottom frame positions of the water pipes, bulk-heads and stanchions between them.

Manner of construction.—The sides of the floats are formed of three or more pieces of solid oak timber ten inches thick, tongued,
50 grooved and doweled and firmly bolted upon each other; with heavy diagonal braces

on the outside as represented and described Plate I, Fig. 1. The ends of the floats are from 6 to 8 inches thick put together in the same manner as the sides; the bottom and
60 deck timbers are 5 inches square and are let into the side in such manner as to be covered by the plank which are put on lengthwise with the float. The bottom plank are of oak, the deck plank are of yellow pine, all
65 2 inches thick.

The bulkheads dividing the interior of the floats into several chambers, are formed by stanchions and planked with two-inch
oak, and made tight by calking. The ends of the upright trunks corresponding with
70 the side of the float are of oak 6 to 8 inches thick, the side being planked with pine 2 inches thick.

The ballast cisterns *c*, are represented in Plate III, Fig. 1, and occupies that space
75 within the shaded lines *n n*, and are formed within the trunks by means of a framework across the narrowest way of the trunk, planked with pine and made water tight by calking. The capacity of them may be made
80 more or less as deemed most proper or necessary and they may be made and attached to the outside of the trunks.

Cleats are nailed to the frame work within the pump-well and cistern as represented
85 in Plate 3, Fig. 1, and Plate 2, Fig. 1, for the purpose of ascending and descending, openings or shutters V, Plate III, Fig. 2 are left in the 2d and 3d bulkheads from each end near the top sufficiently large for a man
90 to pass through and are closed and made tight when the dock is in use. A small hatchway W Plate 1, Fig. 3, is left in the deck of each float at each end between the 1st and 2d bulkheads, of sufficient size for
95 a man to pass, which hatchways are secured and calked when the dock is in use.

The floats thus constructed are arranged side by side as represented, Plate I, Figs. 2 and 3, and placed at such distance from
100 each other as to suit the weight and length of the boat or vessel to be raised, using no more of them than may be necessary, and are firmly connected by the string timbers P, passing through the bits or timber heads
105 S, Plate II, Fig. 1.

Mode of operation.—The operation of this dock is by letting water into the pump wells D, at each end of each float by means
110 of a cock F, turned by an iron rod G, which

extends to the top of the trunk, and from the wells into the several chambers through the several pipes H H H, Plate 3, Fig. 3, which pipes are opened and shut by rods I, Plate 2, Fig. 1, extending to the top of the trunk, and blocks or wooden cocks K Plate 2, Fig. 1, and by pumping from the wells to the ballast cisterns; the dock gradually sinks to the required depth to admit the boat or vessel to pass free over the blocking previously arranged to suit her bottom, the water is then shut off, the boat or vessel being placed and secured in her proper position, the pumping is commenced and continued until the deck of the dock is raised 2 or 3 inches above the water. During the process of sinking or raising the dock, the water is so regulated by letting it into the wells and from them to the chamber, and by pumping into or discharging from the ballast cisterns as to preserve at all times an equilibrium. It will be readily seen that the ballast cisterns are made to answer several important purposes: the weight of water thrown into them facilitates the sinking; by regulating the quantity they aid materially in preserving an equilibrium, if necessary they may be entirely exhausted of water while raising the dock, by means of the pump, by opening a communication with the well, and closing those connected with the chambers, thereby creating great additional means of keeping up an equilibrium, an operation however, that has never yet been found necessary in the raising of steam boats, and by a discharge of water from them on deck near the bottom by simply drawing a plug the dock is assisted in raising.

The peculiar advantages of this kind of dock are: 1st. The superior strength, simplicity and cheapness of construction. 2d. The ease and safety with which it is managed. 3d. The ready means within itself of repairing, by detaching the float requiring repair and raising it upon the others. 4th. The convenience of attaching and detaching the floats using as many only as may be necessary for the boat or vessel to be raised.

5th. The raising of the boat or vessel with perfect safety and without straining any part. 6th. The means of straightening a boat or vessel that has become hogged or twisted, which may be easily done by raising or sinking one or more floats or either end of them. 7th. The great comfort and convenience to the workmen, having a clean and dry deck to work upon, a free circulation of air, by which a vessel is sooner made sufficiently dry to work upon, and always light sufficiently ample for work on all the outer side of the vessels bottom. 8th. There being no necessity of discharging a greater quantity of water than is equal to the weight of the boat or vessel to be raised, added to

that admitted for the purpose of sinking the dock to the required depth. 9th. The convenience and safety of detaching the floats and placing them sidewise along shore as a security against ice in exposed situations in winter.

The nature of my invention and improvements I will now proceed to describe with reference to the improved floating dry dock, invented by Capt. John Thomas and patented to James H. Peck, Robert Wash, William Thomas and John D. Coalter and as described in the specification attached to said patent, showing in what my inventions, improvements and differences of construction consists and in what manner they differ from said specifications.

1st. In the construction and use of a ballast cistern, formed in each of the upright trunks, the uses of which are fully explained in the mode of operation of the dock, and are substituted in lieu of the float wells and well floats, with their appendages described in said specifications here referred to as being placed in each end of each trunk, which float wells, communicated with the pump wells and chamber.

2d. In dividing that part of the floats between the wells at each end, into six chambers of different dimensions decreasing the capacity of them toward each end of the float and by making each chamber water tight, in the specifications here referred to there are but four chambers mentioned, the middle bulk head of the float only, being considered as absolutely necessary, and none of them were made tight, it being declared as unnecessary that they should be so, scuttles were left open through them sufficient for a man to pass through; experience has proved the actual necessity of having all the bulkheads tight, that unless they are so the dock cannot be controlled and is entirely unmanageable. The dock is easily managed and without any difficulty by the increased number of chambers, by making them tight and by decreasing their dimensions toward the ends of the floats; the number however may be more or less than six.

3d. In the use of pipes to convey the water from the well to the several chambers, which pipes are placed on the top of the floor or bottom timbers and are more fully described in the mode of operation of the dock. And in the use of air pipes LLL, Plate 2, Fig. 2, forming a communication between the several chambers and the upper part of the well, by which the air escapes from the chambers while they are filling with water, which air pipes are let into the top of the deck timbers so as to be secured by the deck plank and are bent at the point where they enter the well and raised perpendicularly a short distance above the level of the deck.

4th. In having substituted one common

copper pump worked with a brake in place of the two wooden pumps worked with a pendulum as described in said specifications.

5 5th. In discharging the water from the pump near the deck of the dock under water by the spout M, except when filling the ballast cistern, instead of raising it to the top of the pump by which means more than one half the labor of pumping is saved having a
10 much less weight of water to raise.

6th. In dispensing with the use of all other ballast than that of water thrown into the ballast cistern, which may be increased or diminished as circumstances may require
15 in the manner described in the mode of operating the dock.

7th. By the admission of water into the floats at the ends by means of a cock, in lieu of its being let in through a hole in the bottom and stopped or regulated by a plug as
20 described in said specifications.

8th. In the connecting of the floats by string timbers passing through bits or timber heads in lieu of the iron links and eyes
25 described in said specifications.

What I claim as my invention and desire to secure by Letters Patent is—

1. The employment of the ballast cistern

in combination with the floats in the manner herein described.

2. I also claim the making of the bulkheads, which separate the chambers, water tight so as to prevent the water from passing from one chamber to another except through the pipes governed by cocks as herein de- 30 scribed.

3. I also claim the mode of connecting the several chambers and the wells by means of water and air pipes governed by cocks, valves or gates for the purpose and in the 40 manner described.

Having given a full and clear description of the manner of constructing and operating the dock together with my improvements, such as will enable any competent workman 45 to construct the same, I would have it understood that I do not mean to confine myself to the precise form, dimensions, or number of floats and their appendages but to vary the same while I attain the same ends 50 by means substantially the same.

WM. THOMAS.

Witnesses:

D. D. DAVIS,

THOS. B. HUDSON.