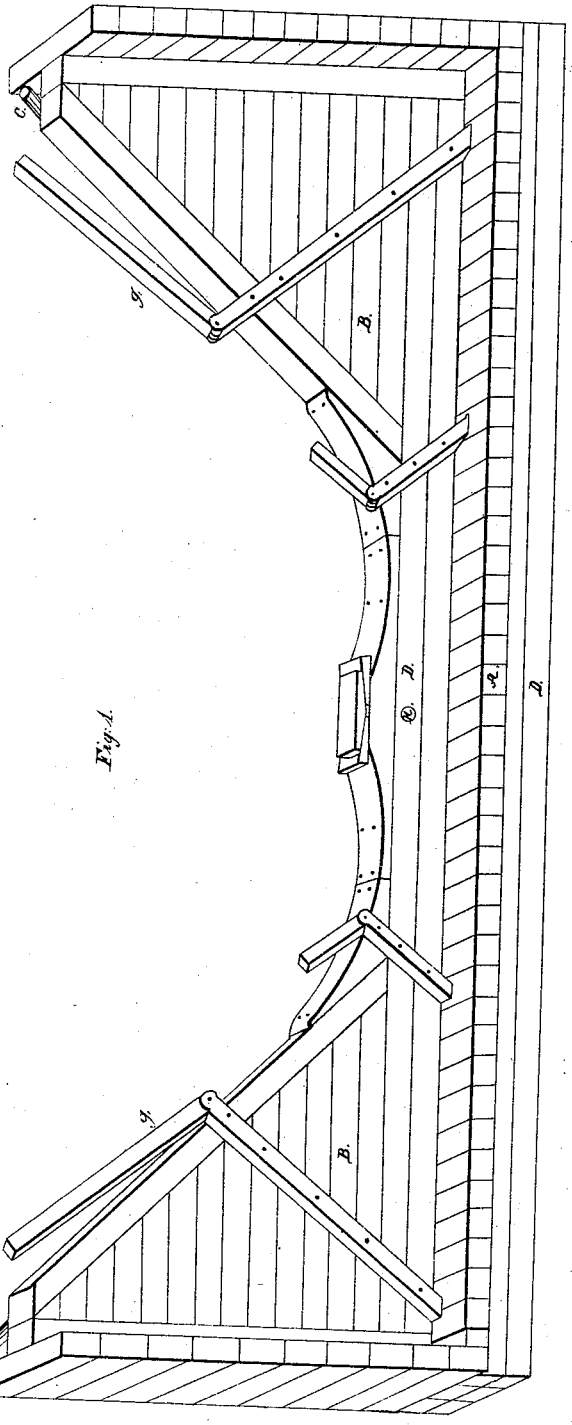
J. S. Gilbert

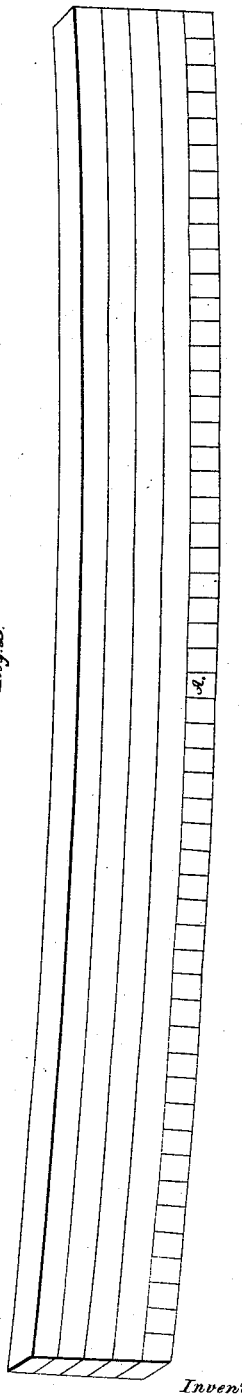
Sheet 1, 2 Sheets.

Floating Dry Dock.

No. 1,606.

Patented May 12, 1840.




Witnesses:

G. C. King

Charles Sugenant

Inventor:

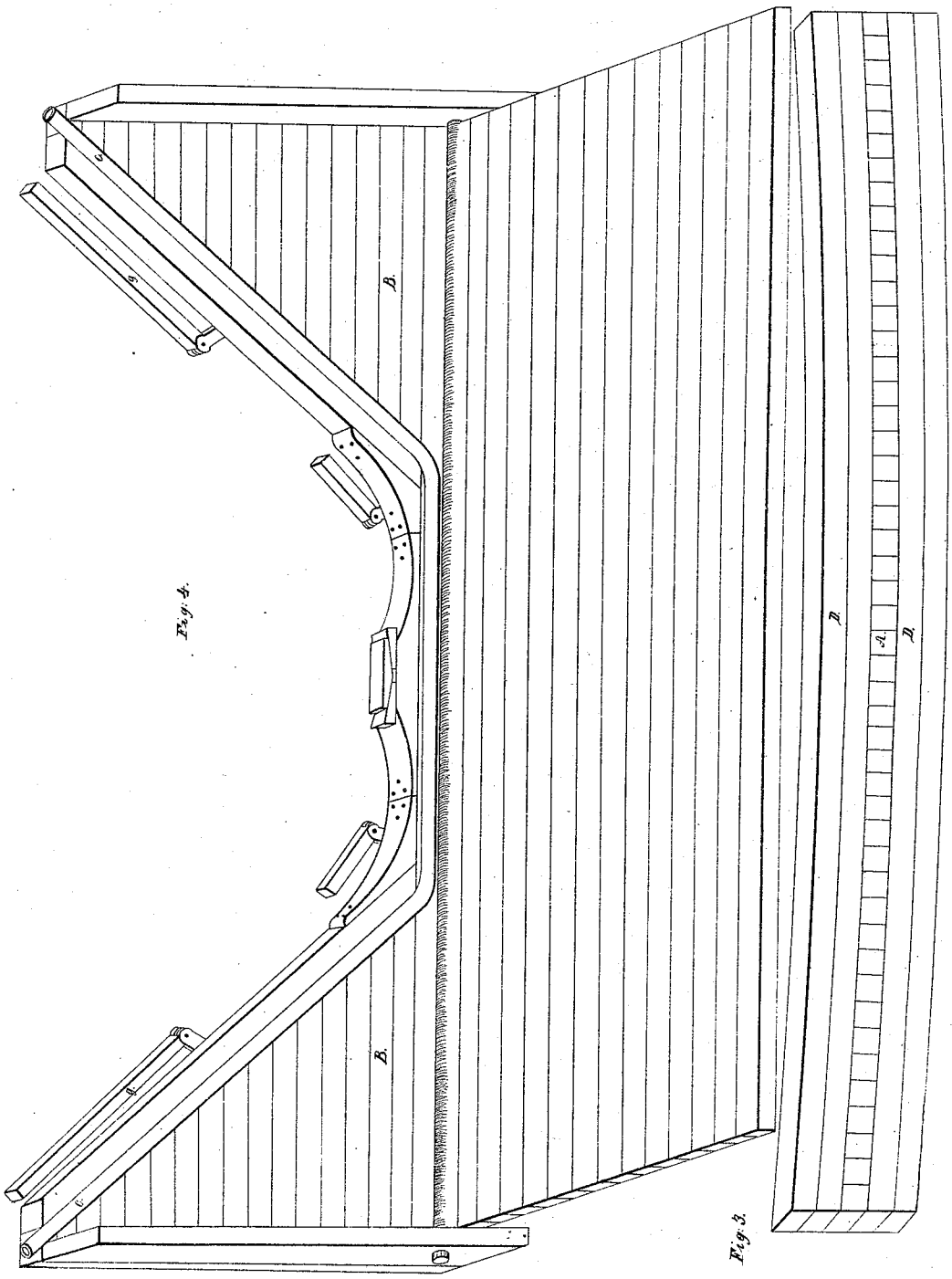
John S. Gilbert

Sheet 2, 2 Sheets.

# J. S. Gilbert.

## Floating Dry Dock.

No. 1,606. Patented May 12, 1840.




Witnesses:

Inventor:
John J. Gilbert

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

# UNITED STATES PATENT OFFICE.

JOHN S. GILBERT, OF NEW YORK, N. Y.

## IMPROVEMENT IN THE CONSTRUCTION OF DRY-DOCKS.

Specification forming part of Letters Patent No. 1,606, dated May 12, 1840.

*To all whom it may concern:*

Be it known that I, JOHN J. GILBERT, of the city of New York, in the county and State of New York, engineer, have invented certain new and useful Improvements in the Construction of Dry-Docks, to be of wood or of sheet-iron, the bottom to be strengthened with timbers, which I term "clamps" and "buttresses;" also, a water-stopper for preventing leakage at the entrance-gates, which I term a "hydrostatic water-stopper," of which improvements the following is a full and exact description.

Figure 1 of the drawings represents a transverse section of the dock as constructed by me.

A A, Figs. 1 and 3, is an end view of the calked bottom supported above and below by the clamps D D D D. The buttresses are timbers bolted one upon the top of another, starting on the upper clamps (to which they are fastened) far within a plumb-line dropped from the side of the largest ships for which the dock is intended, thence running up on such angle as shall leave breadth opposite the bilge of the ship (when she sets on the blocks) sufficient to enable the workmen to stand upon them and calk or otherwise repair the bottom of the ship. As a general rule, I divide the width of the dock into three equal parts. The lower edge of the buttresses extend across one-third of the bottom on each side, and thence run up on such angle as shall intersect with the upper edge of the perpendicular sides of the dock. By this mode of construction only one-third of the transverse section of my dock is left unsupported, (except by the timber under the keel.) This method I have reason to suppose is an improvement on the usual method of building floating docks, inasmuch as I can build my dock wider and yet leave less width of bottom unsupported. By means of this increased width, I obtain a greater degree of light at the keel of the ship, and likewise a greater degree of steadiness, and when the inner or slanting sides of these buttresses are planked up, if such should be deemed advisable, it will form a dock that will retain less water after the ship is floated in than any other form, shape, or construction. These buttresses are represented at Figs. 1 and 4 at BBBB. The bottom and buttresses thus combined form, as near as may be, an inverted arch. To the buttresses shores are attached with joints to allow of their being made to rest against the dock-frame or sides of the ship, thereby forming, as near as may be, an opposite arch to that formed by the bottom and buttresses. It will be seen upon examination that no brace-work or other mechanical contrivance can offer so perfect a resistance to the upward and lateral pressure of the water as these solid dead-woods, as they depend entirely upon their own strength. The shores are represented at *g g g g*, Figs. 1 and 4.

The advantages which I derive from this my method of constructing and strengthening the bottom of my dock are various. Among the most important is that of being able to operate with it in shoal water, for as the quantity of timber required to be laid crosswise to give to the bottom of the dock sufficient strength to sustain the weight of the class of ships for which it is intended must depend, mainly, upon the length of said cross-timbers between supporters, it will be seen at once that my plan of letting the buttresses extend from the sides of the dock at least one-third across the bottom on each side shortens that part which cannot be strengthened but by an increase of timber placed under the keel, and consequently I am enabled to set the keel of the ship much lower than by any other mode of construction. No allowance need be made for the lower clamps in calculating the depth of water to operate in, as they will settle into the mud. Another advantage of my plan is that I have dispensed with all water-tight chambers below the keel in the middle of the dock. The workmen can therefore stand upon the lowest point in the dock, and as a part of the cross-timbers are below or on the under side of the bottom, they can easily step over the upper clamps, which would be difficult if they were all on top. Another and still greater advantage to be derived from this my plan is the perfect security against leakage. The usual method of constructing single-bottom docks, as well as ships and other floating vessels is to fasten the plank on the under side of all other floor-timbers. The calked joints are thereby brought (especially in the the case of docks) on the outer line of the circle given to the bottom of the dock. By the weight of the ship resting on the center blocks,

it has been found impossible to keep the bottom joints from opening and shutting. The effect produced upon the calk-seams in my dock, as well as one on the old plan, is represented at A A, Figs. 2 and 3. The method by which I fasten my dock together is to bolt the bottom onto the lower clamps, and then calk it on the upper side. The upper clamps are then placed directly over them and are bolted through and through. Supposing the upper clamps to contract as much as the lower ones expand, there will be no important effect produced upon the calked joints. But, in addition to all the advantages to be derived from this my method as above set forth, I am enabled by the use of upper and lower clamps to build my dock in the water, instead of the usual and expensive method of building on the land, and I thereby save the trouble and danger of launching. The buoyancy of the lower clamps may be increased, if it is not sufficient, by other buoyants, until the fore-and-aft timbers that form the tight bottom are fastened and calked. The streaks or layers of timbers that form the sides are calked as they are laid up, so that the joint to be calked is always above water.

The hydrostatic water-stopper is seen at *c c c c*, Figs. 1 and 4. This is a leather hose or hose of other flexible water-tight substance placed in a groove of half a circle (more or less) cut into the frame made of the shape of the entrance of the dock or other parts of the dock where its use may be required as a water-stopper, so that the frame may be removed, if necessary in order to repair the hose. The manner in which I apply the said water-stopper is to fill it, after the entrance-gates are closed, with water or other liquid, so that an outer pressure is produced sufficient to stop the water from passing between the hose and gate.

When the dock is to filled with water in order to float out the ship, the liquid is drawn off through a faucet, as seen at R, Fig. 1.

Having thus fully described the manner in which I construct the bottom and buttresses of my dock, and also the mode of using my hydrostatic water-stopper, I do hereby declare that what I claim therein as of my own invention, and desire to secure by Letters Patent, is—

1. The particular manner of arranging the cross-timbers by placing a part below and a part above the calked bottom, thereby securing said calked bottom between clamps for the purpose of preventing the opening and shuting of said calked seams, &c.

2. The employment of a hydrostatic water-stopper for the purposes and in the manner heretofore described in this specification.

In testimony whereof I, the said JOHN S. GILBERT, hereunto subscribe my name, in the presence of the witnesses whose names are hereto subscribed, on the 22d day of April, A. D. 1840.

JOHN S. GILBERT.

Witnesses:
N. S. KING,
CHARLES STUYVERSANT.