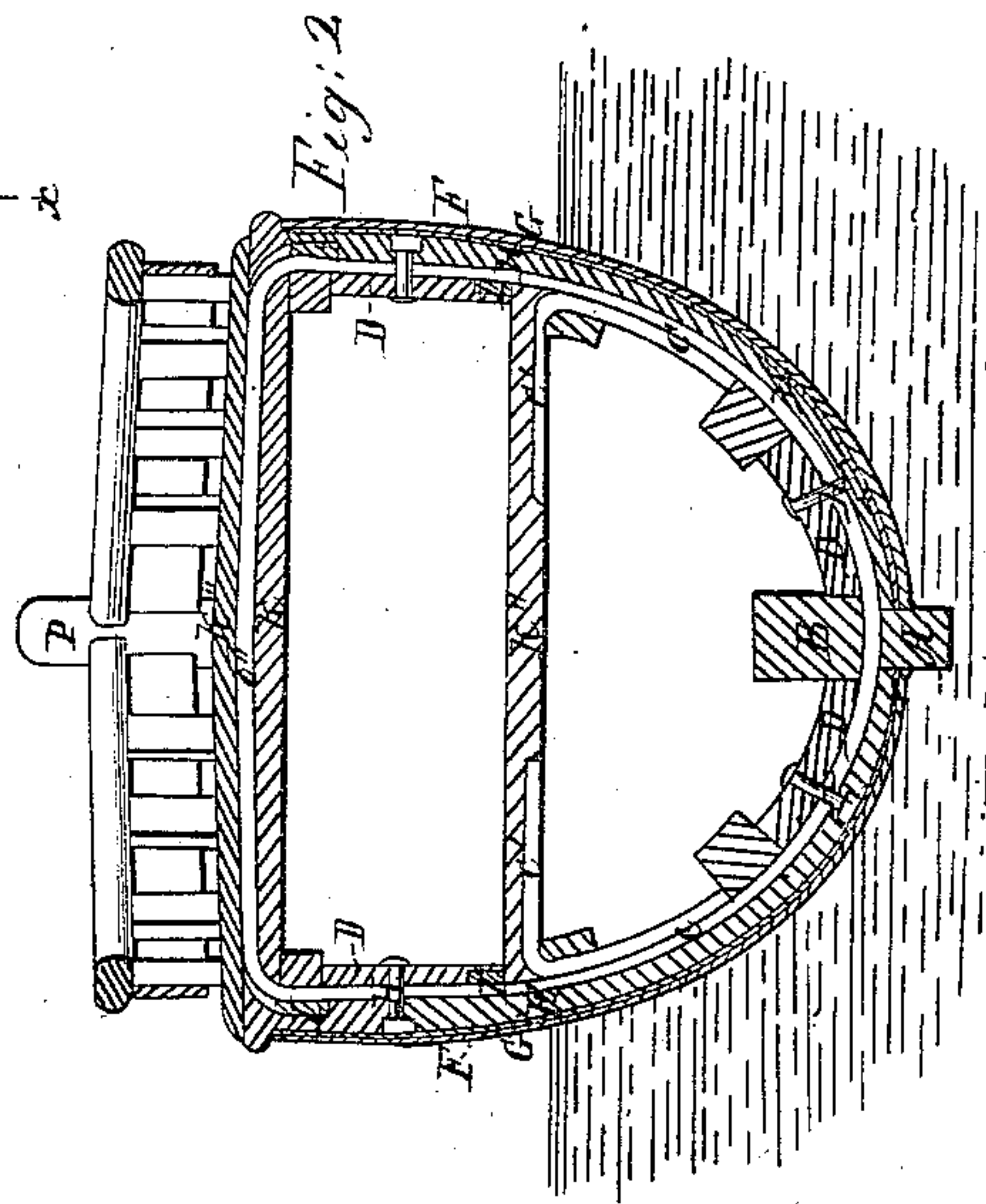
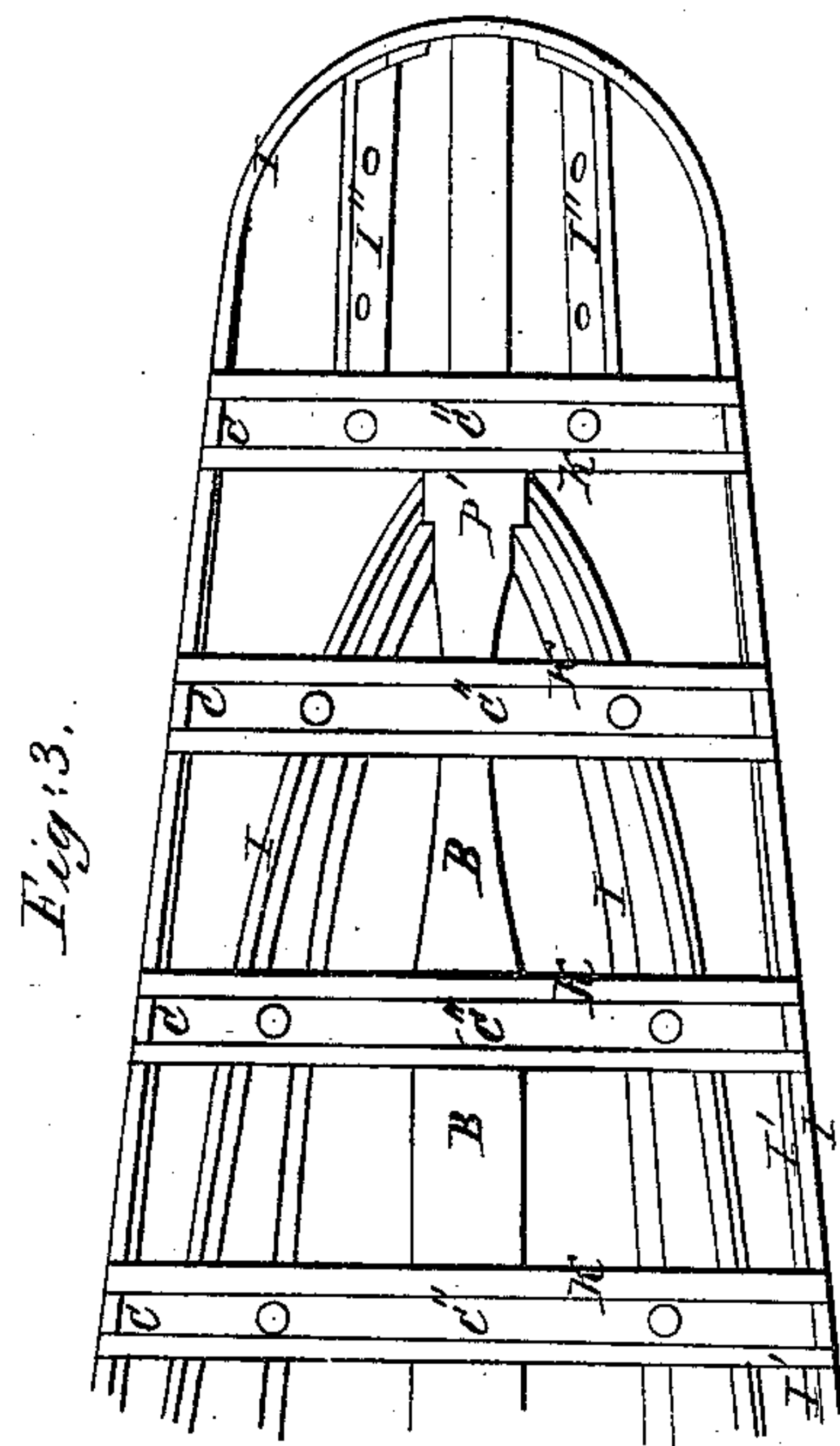
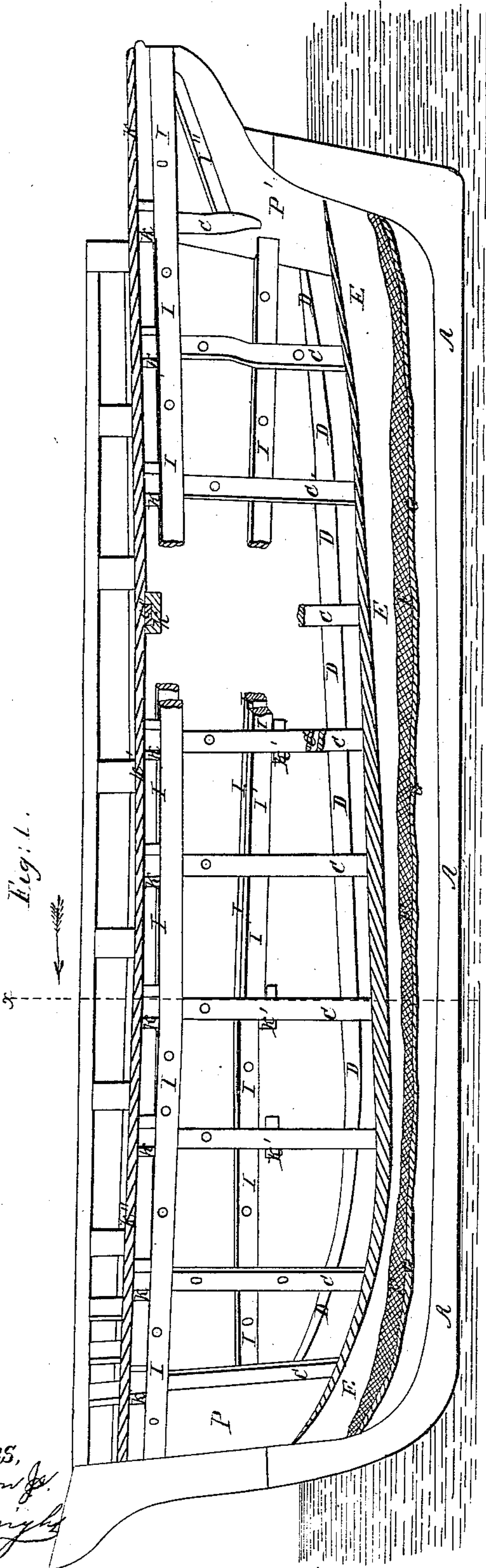


# J. B. Stoddard. Ship Building.

N<sup>o</sup> 93,920.

Patented Aug. 17, 1869.



Witnesses,  
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# United States Patent Office.

JOHN B. STODDARD, OF BALTIMORE, MARYLAND.

*Letters Patent No. 93,920, dated August 17, 1869.*

## IMPROVEMENT IN SHIP-BUILDING.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern :*

Be it known that I, JOHN B. STODDARD, of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Ship-Building; and that the following is a sufficiently full and exact description thereof, to enable one skilled in the art to which my invention appertains to carry it into effect, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improved construction of the hulls of wooden vessels, of that class especially required to possess sea-going qualities.

My improvements consist, essentially—

First, in constructing the frame or skeleton of the vessel of transverse and longitudinal continuous metallic bars or hoops crossing each other at about right angles, by means of which great strength, with minimum bulk and weight, is secured.

Second, in forming the sheathing of the vessel of two series of ceiling-breaking joints, being arranged on the respective sides of the metallic frame and bolted together, and a series of planking for the attachment of the copper sheathing, secured to the ceiling without through-bolts, and separated therefrom by a layer of tarred canvas, or its equivalent, thus producing perfectly solid sides, not liable to decay by reason of such solidity, absolutely impervious to water, and comparatively stronger than the hollow sides commonly employed, adapting, further, the locality of any leak caused by contusion to be immediately detected, and its stoppage consequently facilitated, and also to permit of bulkheading, which has heretofore been practically impossible in wooden vessels.

In the drawings—

Figure 1 represents a sectional side elevation of a vessel, constructed according to my invention.

Figure 2, a transverse section in the plane indicated by the line *x x*, fig. 1.

Figure 3, a plan view of the stern-portion of the frame.

Similar letters of reference indicate like parts in the several figures.

C C represent vertical hoops, of iron or other suitable metal, secured between the keel A and keelson B, arranged at suitable distances apart, and encircling the vessel transversely, as shown most clearly in fig. 2.

I I represent horizontal metallic hoops encircling the vessel longitudinally, as represented, and crossing the transverse hoops C at about right angles, being fastened at the respective ends of the vessel to the stem and stern-posts P P', and also bolted, if preferred or deemed necessary, to said transverse hoops C.

When more than one of the longitudinal hoops I are employed, as represented, the lower are preferably

arranged inside of the transverse hoops C, to facilitate the attachment of the ceiling, and the upper one on the outside, to accommodate the stanchions, as shown.

I' I' represent struts or stays attached to the longitudinal hoops I, for the support of the transverse hoops C, between which they are arranged.

I" I" represent short longitudinal metal bars, corresponding with I, employed at the stern of the hull, as shown.

Any necessary number of the hoops C I may be employed, and they may be distributed in any suitable manner, so as best to support the hull.

The keel and keelson A B, and stem and stern-posts P P', having been first erected, the transverse hoops C are mounted, and the longitudinal hoops I then applied, when the frame-work or skeleton is complete, being entirely of iron, except the four first-named parts, which are preferably of wood.

K K represent the main-deck timbers, which are grooved for the reception of the cross-bars or portions C" of the hoops C, and are of sufficiently greater width than said hoops to receive the spikes for fastening the deck K" on the sides of said hoops; this portion of said hoops thus serving to support the deck as well as laterally support the hull.

C' C' represent knees attached to the inner sides of the hoops C to support the lower-deck timbers K of a double-decked vessel.

I now proceed to describe the covering or sheathing of the vessel.

This is done by first putting on a course, D, of ceiling, composed of wooden planks, on the inside of the ribs, together with a corresponding course, E, on the outside, and bolting them fast by the bolts H, as shown in fig. 2, the respective series being so arranged as to break joints.

This double ceiling is then calked from both inside and outside, the respective series forming abutments for the seams of the other, and enabling the calking to be very perfectly and readily performed.

Having done this, the outside of the hull is sheathed with canvas, ducking, or other suitable material, F, tarred or soaked in some preparation adapted to preserve the wood and render it impervious to water, which covers the heads of the bolts H employed to unite the two series of ceiling, and protects them from moisture, and consequent rust, and also serves to prevent the absorption and retention of moisture by the wood.

After this, the wooden planking G is put on with treenails or composition-fastenings, or both, and the copper (not shown) nailed thereto.

The inside ceiling D is gained, to receive the transverse hoops C, so as to be flush with their outer sides, and thus present a smooth surface for the reception



of the outside ceiling E, on which the planking G being secured, as shown and described, perfectly solid sides are produced.

The chemically-prepared canvas, or its equivalent, F, placed between the planking and ceiling, prevents any liability of such solid sides to rot, which might otherwise render them objectionable.

The solidity of the sides, besides the great rigidity and strength it imparts to them, further secures the immediate detection of a leak, from whatever cause it may result, the water flowing immediately into the hold, instead of first into a space between the ceiling and planking, and from thence into the hold, as in other wooden vessels.

It also thus greatly facilitates the stoppage of leaks.

It further, in connection with the lateral support of the hull, afforded by the transverse hoops, adapts the vessel to be effectively bulkheaded, which has heretofore been entirely impracticable in wooden vessels.

The inner ceiling, instead of abutting against the stem and stern-posts P P', as is usually the case, extends entirely around, as indicated in fig. 1, and being scarfed together, forms a complete "breast-hook" at each end of the vessel.

The two series of ceiling breaking joint, the calking is effectually prevented from going through, and is thus enabled to be more perfectly packed and more securely held in the seams than it could otherwise be.

The double-calked ceiling renders the vessel safe against leakage, even on the planking being broken off.

The planking forms an attachment for the copper, serving to isolate it from the iron frame and the bolts required to connect the two series of ceiling, and thus effectually preventing any galvanic connection between them.

The metallic hoops entirely surrounding the vessel in both directions, form a most perfect support in all directions to the hull, combining besides, in a superior degree, strength, lightness, and compactness.

The metallic skeleton or frame-work may preferably be made of galvanized iron to prevent corrosion.

Either canvas, ducking, paper, or other suitable material, may form the base of the layer F.

A vessel constructed according to my improvements is entirely free from bilge-water, and a vessel so constructed cannot "hog" or "spread," every timber of her frame forming a brace, and will consequently not require any "gallows," "hog-chains," or other "top-hammer."

It is, further, not liable to be cut through by ice, owing to its metallic frame, and the calked ceiling inside of such frame prevents leakage being caused by any incision which could be thus made.

It is, further, owing to its capability of being coppered, free from the objections to iron hulls, which are liable to foul and become leaky.

It will, further, in consequence of its non-liability to the injuries referred to, require less repairs, and will last longer than the vessels now being built or those built on any of the old plans, which are all more or less liable to such injuries and objections.

My improved mode of building is admirably adapted for light-boats, floating-docks, stages, lighters, canal-boats, barges, scows, rams, floating batteries, and every description of floating craft.

Having thus described my invention,

I claim, and desire to secure by Letters Patent—

1. The combination of the transverse and longitudinal metal bars C I, extending entirely around the vessel at about right angles to each other, with inner and outer ceiling D E, arranged respectively inside and outside thereof, and bolted together, substantially as set forth.

2. The combination of the inner and outer ceiling D E, breaking joints, and bolted together as described, with the planking G, secured to the outer ceiling E, without through-bolts, and with tarred canvas or other suitable material impervious to water, F, interposed between the planking and ceiling, all substantially as and for the objects stated.

J. B. STODDARD.

Witnesses:

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WM. H. RICHARDSON.