A. CROSBY.

CONSTRUCTION OF BOATS AND VESSELS.

No. 190,129. Patented May 1, 1877.

Fig. 1

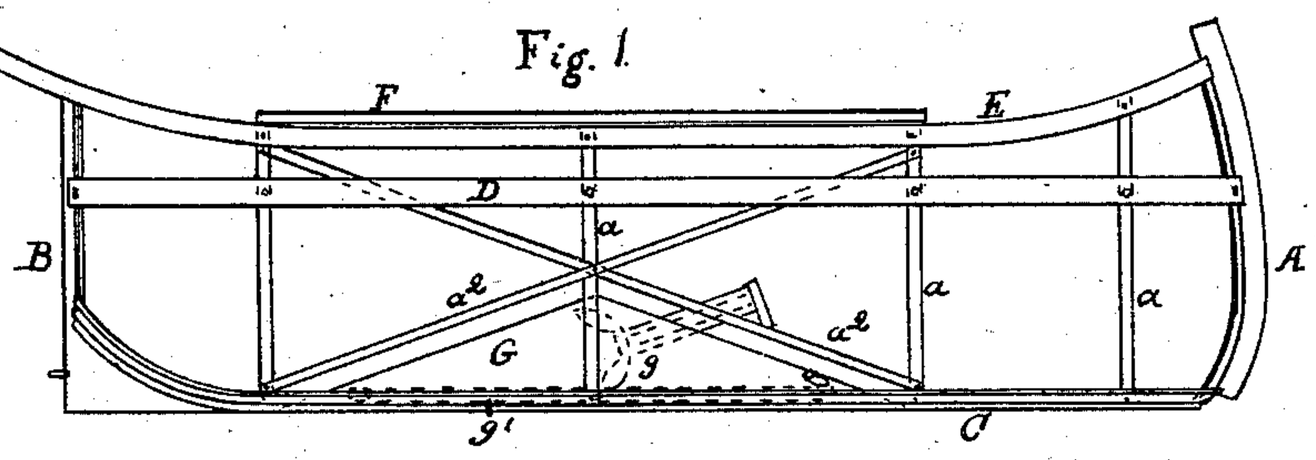


Fig. 2

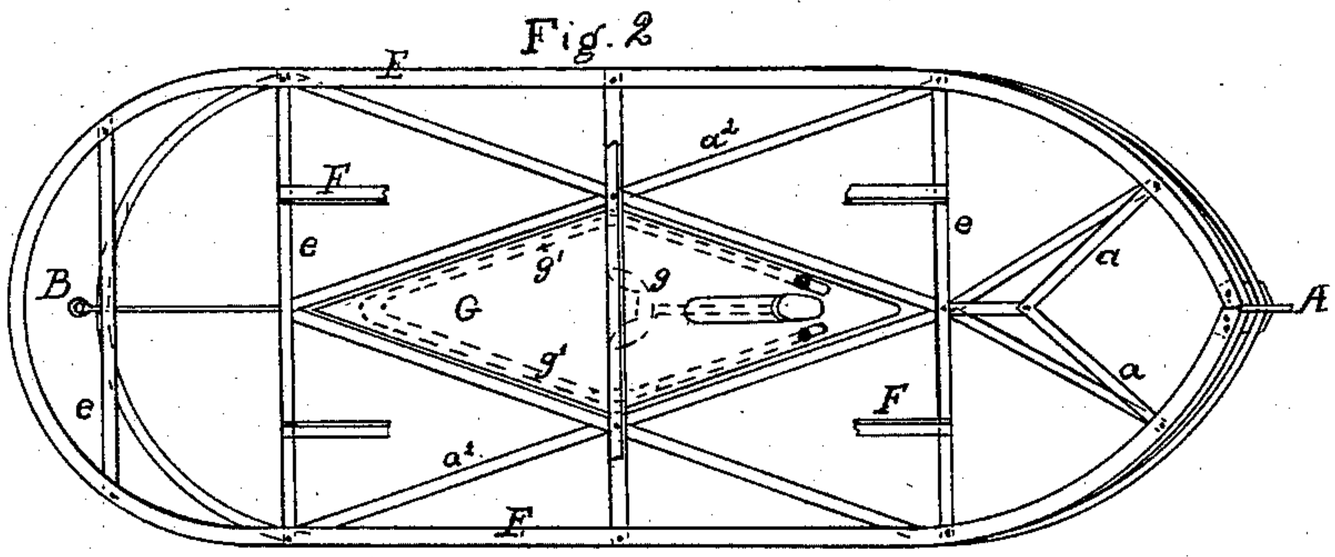
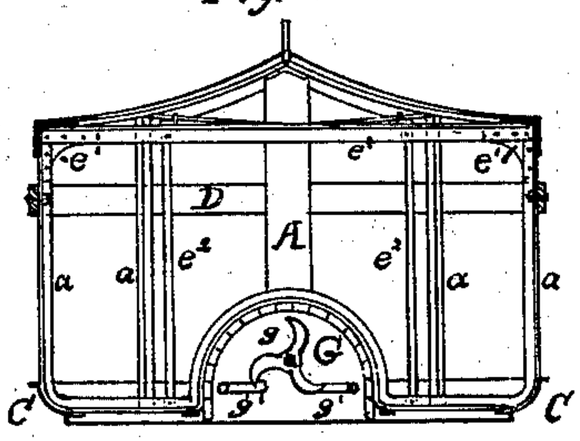


Fig. 3



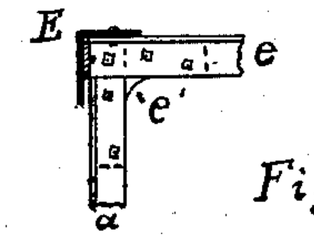
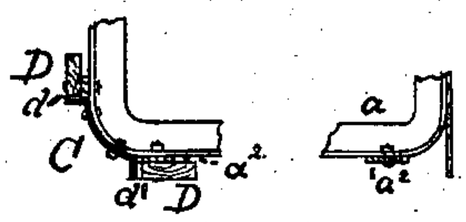


Fig. 4



Attest:

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Atty

UNITED STATES PATENT OFFICE.

ADDISON CROSBY, OF NEW YORK, N. Y., ASSIGNOR TO CENTRAL PROPELLING COMPANY, OF SAME PLACE.

IMPROVEMENT IN CONSTRUCTION OF BOATS AND VESSELS.

Specification forming part of Letters Patent No. **190,129**, dated May 1, 1877; application filed February 5, 1877.

To all whom it may concern:

Be it known that I, ADDISON CROSBY, of the city, county, and State of New York, have invented an Improvement in Boats and Vessels, of which the following is a specification, reference being had to the accompanying drawings, of which—

Figure 1 represents a side view of a boat, with a portion of the planking removed to show the construction. Fig. 2 is a plan view of the same, with the deck-planking and part of the deck beams and stringers removed. Fig. 3 is a cross-section on the line *x x*. Fig. 4 represents details of the manner of fastening the frames to the deck-beams, wales, bilge-keels, and propeller-chamber, and also calking the bilge or garboard strakes.

This invention consists of a method of constructing boats and vessels with a metal frame and wood planking, so arranged as to give the best results of strength and durability of the exposed parts, combined with extreme lightness and carrying capacity.

For this purpose the metal frame is composed of a stem, A, and stern-post B, both of T-iron, and secured at their lower ends to bilge-keels C C, of iron or steel, which have flanges turned upon their edges as deep as the thickness of the planking D, the flanges making, with the wood of the planking, a garboard or bilge-seam, *d*, that can be calked in the usual manner, while the metal protects the wood from abrasion against the banks or obstructions in passing.

The upper ends of the stem A and stern-post B are connected by means of the wales E E and beam *e*, both of angle-iron.

The frames *a a* are made of angle-iron, bent to the proper form, and secured to the bilge-keels C C by means of bolts or rivets, and to the wales E E and deck-beams *e e* by means of bolts, rivets, and hanging knees e^1.

Those frames that are located upon the curved part of the bow and stern are set in position radial to the curve of contour at the point of contact, giving the greatest strength to resist pressure from without.

Those deck-beams corresponding to the above frames of bow and stern are also set at similar angles.

There are metal stringers F F, secured upon the deck-beams *e*, on each side of the hatch-openings, and immediately above the stanchions e^2 e^2, which support the beams *e e*.

The floors and frames *a a* are connected by a series of metallic braces, a^2, secured to them by bolts or rivets, giving great rigidity to the whole.

When desired, the frames *a a* are bent into such form as to accommodate the propeller-chamber G, which, being made of plate metal, and bolted or riveted to the frames *a a*, adds strength and stiffness to the whole.

The wooden planking is secured to the outside of this frame by means of bolts, rivets, screws, or spikes, as may be preferred, and then calked in the usual manner, the whole making a very strong and durable vessel for the amount of material required.

In steamers using the chamber G and propeller *g*, a surface-condenser, *g'*, is located in the chamber G, where it is protected, and the necessity of injection and circulating pumps obviated.

The chamber G and condenser *g'* may be of any desired form or pattern.

This method of construction is more especially designed for canal and river boats; but is applicable to all classes of vessels, either for ocean or inland service.

Having thus described the nature of my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the bilge-keel C with the metal frame-work and wooden planking, when the bilge-keel is made an integral part of the strength of the internal frame, and also of the outer skin of the vessel, as herein shown and set forth.

2. A composite boat having a metal frame and wooden planking, in which the frames *a* of the bow and stern are set radially to the curve of contour, as herein shown and described.

ADDISON CROSBY.

Witnesses:
ALOHA VIVARTTAS,
W. H. ALLEN.