J. W. Griffiths,

Building.

No. 51,308. Patented Dec. 5, 1865.

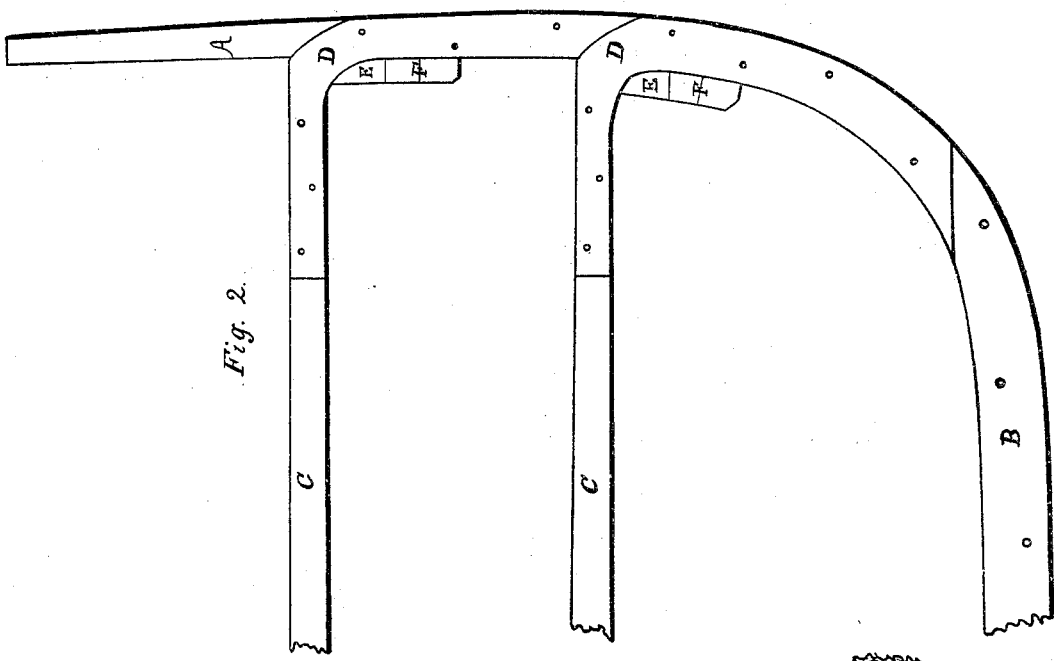

Fig. 2.

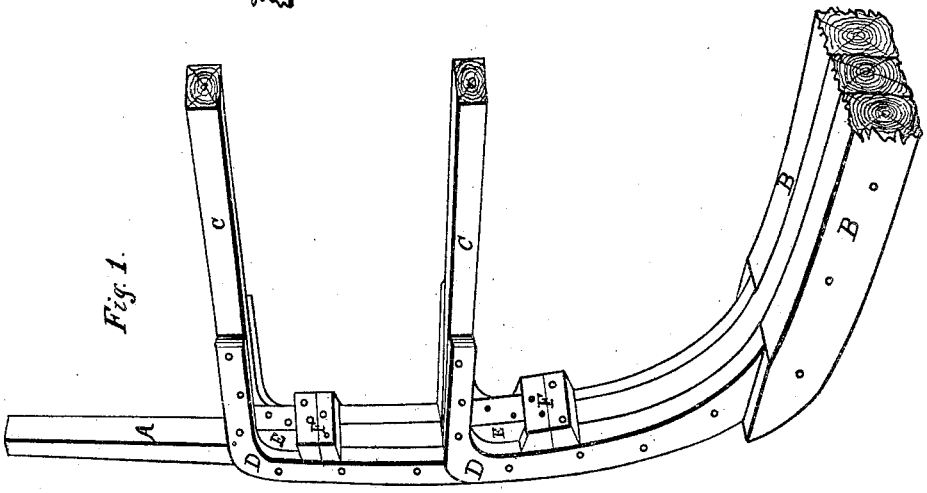

Fig. 1.

Witnesses:

John Covin

J. L. Coombs

Inventor:

John W. Griffiths

UNITED STATES PATENT OFFICE.

JOHN WILLIS GRIFFITHS, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN SHIP-BUILDING.

Specification forming part of Letters Patent No. **51,308**, dated December 5, 1865.

To all whom it may concern:

Be it known that I, JOHN WILLIS GRIFFITHS, of Brooklyn, in the county of Kings, in the State of New York, have invented a new and useful Improvement in Constructing the Frames of Hulls of Wooden Vessels, which I have denominated "Griffiths' Timber, Knee, and Deck-Framing for Ships;" and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

By the present mode of construction, the frame-timbers of the hull and the deck-beams bear no definite relation to each other in their siding dimensions. The best arrangement now in practice looks only to overlapping as much of the timber with the end of a beam as will cover the body of the hanging knee, so as to receive the knee-bolts, which must first pass through the clamps before reaching the timber, while the arm of the knee projects below the beam and is bolted to it.

By my improvement the frame-timbers of the hull and the deck-frame are made to harmonize in siding dimensions and position, and whether the frame-timbers of the hull be composed of a double or single course of timbers, the deck-beams conform in their siding size, which makes room for the hanging knees in the interstices between the timbers and between the beams, on the sides of each, instead of projecting, as heretofore, from the lower side of the beam and beyond the ceiling. The space for the cargo is thus increased by the removal of all projections of hanging knees, and the vessel is greatly strengthened by the additional number of hanging knees, there being two to each end of every beam instead of one as heretofore. The beams at the same time continue to receive their clamp support by a piece of timber corresponding in width and thickness with the clamp-strake extending from the end of the beam to the upper strake of the clamp, which is at the terminus of the throat of the knee, as shown in Figure 1 of the drawings.

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

In the accompanying drawings, Fig. 1 is a perspective elevation of a half-frame of the hull of a two-decked vessel, with the frame-timber A and floor-timbers B B; also, the beams C C, with the knees D D on the sides of the timbers and beams; the beam-supporters E E, and the clamps F F. Fig. 2 is a front view of half the frame of a vessel having two decks, with floors, beams, knees, beam-supporters, and clamps, designated by the same letters as in Fig. 1.

I make the frame-timbers A and the beams B to agree in their siding dimensions; the body of the hanging knees D and the frame-timbers to agree in their molding dimensions, and the arms of the hanging knees of the same dimensions vertically as the beams. The knees are bolted to the frame timber and beam, one on each side, making flush and even surfaces therewith. The clamp-strakes F are bolted to the timbers and knees, the upper edge being at the terminus of the throat of the knee, and the beam-supporter E is placed (the grain vertical) with its lower end resting on the upper clamp-strake and its upper end receiving and supporting the end of the beam, and it is bolted to the frame-timber.

By this method the frame, consisting of the beams, knees, and frame-timbers, is put firmly together before the frame is raised across the keel, the beams and knees forming a part of the frame.

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

1. In hull-frames of wooden vessels, making the timbers and beams of the same dimensions in siding-way, substantially as shown and described.

2. Placing the hanging knees on the sides of the timbers and beams, and in the interstices between the timbers and between the beams, substantially as shown and described.

3. The beam-supporters E, extending from the upper clamp-strake to the beam, substantially as shown and described.

4. The frame consisting of the beams, knees, frame-timbers, clamp-strakes, and beam-supporters, in combination, when constructed and put together substantially as herein described.

JOHN WILLIS GRIFFITHS.

Witnesses:

JOHN COON,

I. I. COOMBS.