T. LEE.

Construction of Hulls of Vessels.

No. 213,213 Patented Mar. 11, 1879.

Fig. 1.

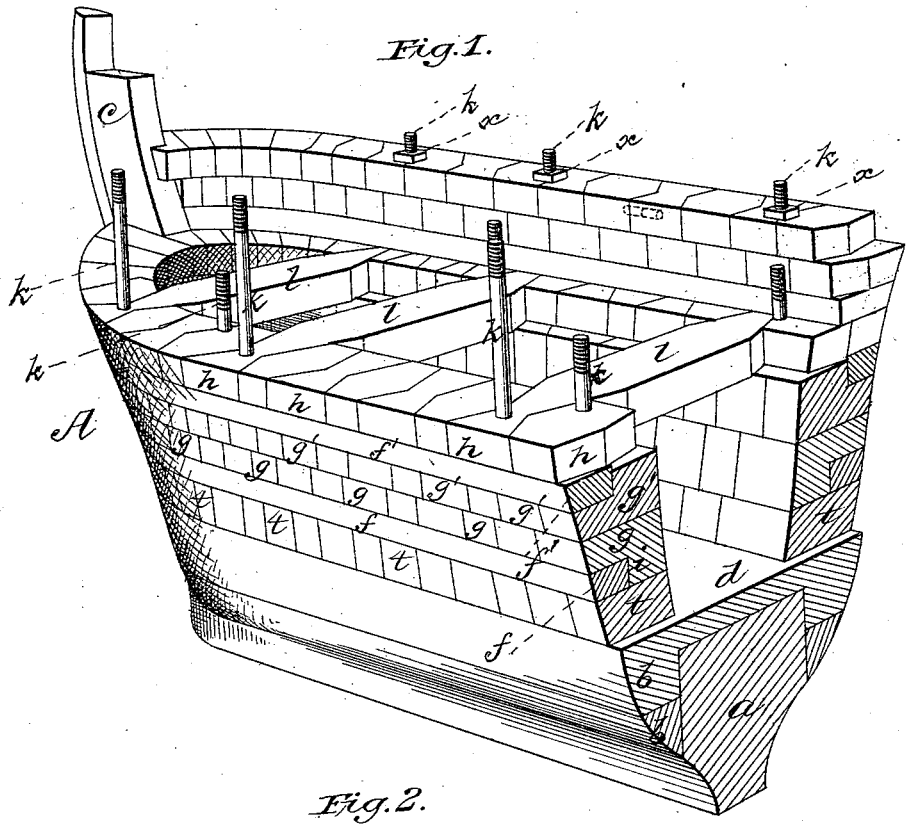
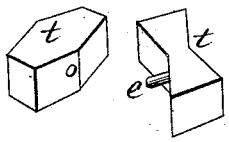


Fig. 2.



WITNESSES

John A. Lee.

F. J. Masi.

INVENTOR

Thomas Lee,

by E. W. Anderson,

ATTORNEY

UNITED STATES PATENT OFFICE.

THOMAS LEE, OF PORTAGE, WISCONSIN.

IMPROVEMENT IN CONSTRUCTION OF HULLS OF VESSELS.

Specification forming part of Letters Patent No. **213,213**, dated March 11, 1879; application filed January 18, 1879.

To all whom it may concern:

Be it known that I, THOMAS LEE, of Portage, in the county of Columbia and State of Wisconsin, have invented a new and valuable Improvement in the Construction of Hulls of Vessels; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of the fore part of a vessel constructed upon my improved plan; and Fig. 2 is a detached view of the blocks of which the tiers are composed.

This invention has relation to improvements in ship-building; and the nature of the invention consists in a ship's hull built up from the keel portion of transverse blocks of dovetail or other form, connected in the direction of the length of the side by dowels, and vertically by clamp-bolts, one or more ranges of blocks being included between strakes, as will be hereinafter more fully set forth.

In the accompanying drawings, the letter A designates the fore part of the hull of a vessel constructed according to my improved plan, whereof *a* is the keel; *b*, the garboard-strakes, secured thereto at each side; *d*, the deck of the lower hold; and *c*, the stem, secured to the keel in any suitable manner. These parts form the substructure of the vessel.

Secured to the upper garboard-strake, *b*, are a number of transverse blocks, *t*, equal in length to the thickness of the ship's side. These blocks are arranged side by side from stem to stern of the vessel, in such relation to each other that they form the lines of the hull at that portion thereof. These blocks are secured to the strake *b*, aforesaid, by suitable vertically-arranged bolts, and are of the form shown in Fig. 2, the one being hexagonal or coffin-shaped, and the other hour-glass shaped, so that as the said blocks are laid in place they interlock, as shown in Fig. 1, and are incapable of endwise displacement relative to each other. This tier of blocks, as are all the rest, are connected together horizontally by dowels *e*, as shown in Fig. 2, the said dowels being in the length of the side of the ship. Resting upon this tier or range of blocks is a similar tier, *g*, of the same, recessed at *i* to receive a longitudinal strake, *f*, extending continuously from stem to stern, and composed of a number of lapped or scarfed sections. Above the blocks *g* is another tier of blocks, *g'*, recessed upon their upper faces to receive the strake *f'*. The next tier of blocks, *h*, breaks the joint of the strake and blocks below.

The whole structure is solidly clamped together by vertical bolts *k*, the heads of which are usually recessed into the under sides of the strakes, and extend upward through one or more of the tiers of blocks. A clamp-nut, *x*, is then applied and forcibly set up, drawing the same strongly together. This arrangement of bolts is continued up from the keel or garboard strakes, as may prove most eligible, through the whole side, and binds the parts of the vessel together with great force. Usually the end blocks of the tiers and the ends of the strakes are notched into the stem and stern posts and solidly bolted thereto.

The sides of the vessel are built up, as hereinbefore described, until the entire hull is completed, and, when braced interiorly by the deck-beams *l*, which may be dovetailed into the sides, and such other transverse beams as may prove requisite, form a structure capable of resisting the impact of the heaviest seas. Even when the vessel is ashore and exposed on a rocky bottom to a heavy surf she cannot be stove in and go to pieces.

The seams between the blocks and between the blocks and strakes may be calked and payed in the usual way.

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

1. A ship's hull built up from the keel portion of transverse interlocking blocks, connected in the direction of the length of the

sides by dowels, and vertically by clamp-bolts, one or more tiers of the said blocks being included between strakes, substantially as specified.

2. A ship's hull built up from the keel by alternating interlocking blocks and strakes, the blocks and strakes connected vertically by clamp-bolts, and the former connected with each other by dowels, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

THOMAS LEE.

Witnesses:
H. W. LEE,
S. B. LINSCOTT.