B. F. DELANO.

Construction of Vessels.

No. 207,505 Patented Aug. 27, 1878.

Fig: 1.

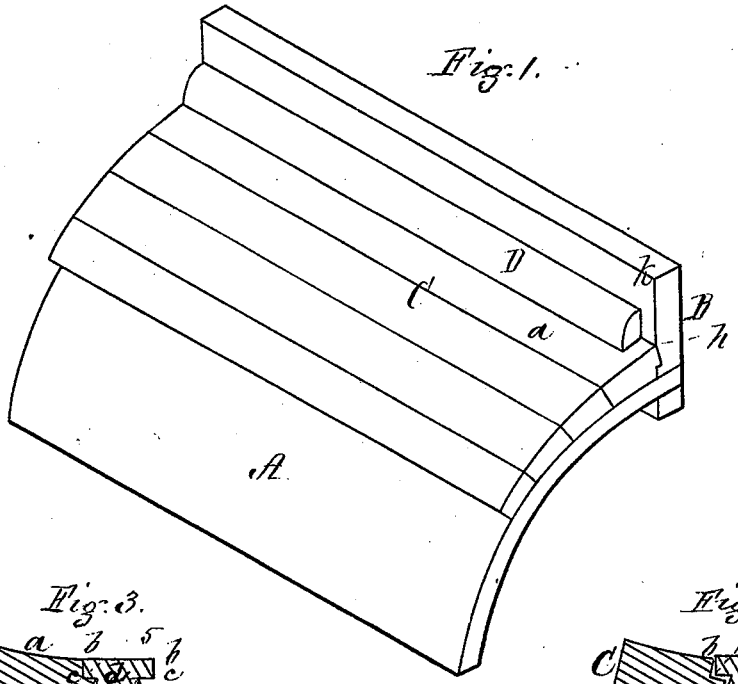



Fig: 3.

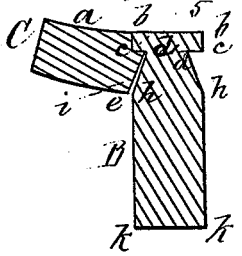



Fig: 4.

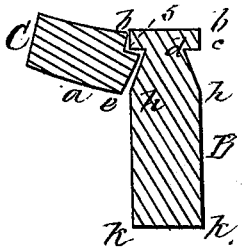
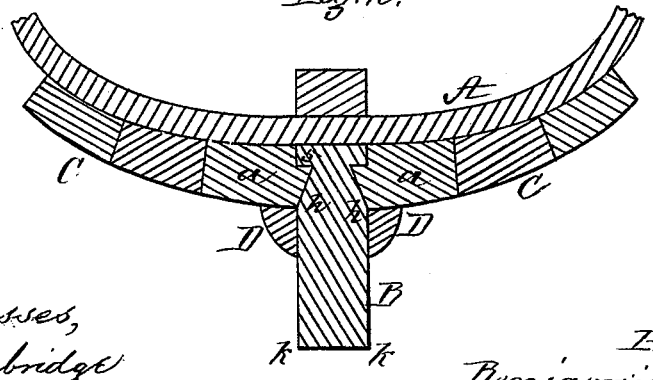



Fig: 2.

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# UNITED STATES PATENT OFFICE.

BENJAMIN F. DELANO, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN CONSTRUCTION OF VESSELS.

Specification forming part of Letters Patent No. **207,505**, dated August 27, 1878; application filed July 18, 1878.

*To all whom it may concern:*

Be it known that I, BENJAMIN F. DELANO, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in the Construction of Vessels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a portion of the bottom of a vessel having my improvement applied thereto. Fig. 2 is a vertical section enlarged; Figs. 3 and 4, details to be referred to.

My present invention has particular reference to the garboard-seam of a vessel, said seam being the joint between the bottom line of planking and the side of the keel. This seam is perfectly tight when the vessel is in a dry-dock or resting upon the stocks, because the weight of the hull or bilges causes them to sag or droop, and thereby close the seam. When, however, the vessel is afloat, the bilges are buoyed up and rise, causing them to separate from the keel and open the seam, the keel being also pressed down by the weight of the masts and the great downward strain of the rigging thereon, which strain also tends to lift the bilges of the vessel, and the oakum in the seam thus opened is forced by the pressure of the water up into the vessel, the consequence of which is that this garboard-seam is usually the poorest-calked seam in the vessel, and great damage from leakage is thereby occasioned, and to stop this leak the vessel is required to go into a dry-dock, for the reason that access to the garboard-seam cannot otherwise be had.

To remedy the above-mentioned difficulty is the object of my present invention, which consists in protecting or closing the opening at the lower edge of the garboard-seam, where the oakum is introduced, by means of a strip or batten extending thereunder, and preferably fastened to the side of the keel, this batten being preferably of soft wood, so that it may more readily swell and fit snugly along the line of the bottom of the seam, and thus preclude the entrance of the water therein, while at the same time the form of the batten is such as to allow of the convenient application of the metal over the felting without danger of cutting it and impairing its efficacy, as heretofore.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents a portion of one-half of the hull of a vessel; B, its keel; and C, the planking forming the bottom and sides, usually termed the "bilge."

The edge or inside of the lower line of planks *a* contiguous to the keel is cut away, as shown in Fig. 3, forming the lines *b c c d d e*, and the side of the keel in proximity therewith is cut away on the lines *b c c d d h*, the lines *b c*, *c d*, and *d e* of the keel and inner edge of the planking abutting snugly against and coinciding with each other, while the line *d e* of the planking and *d h* of the keel form a small acute angle with each other at *d*, leaving a narrow triangular or wedge shaped aperture or seam, *i*, into which the oakum is to be introduced and tightly driven.

The line *b c* lies in one and the same vertical plane as the side *h k* of the keel, and the line *h d* of the keel extends up and slightly inside this plane, and the line *d c* forms with the line *c b* a right angle, or nearly a right angle, a shoulder, 5, being thus formed; and when the vessel is afloat the rising of the bilges tends to open the garboard-seams, as seen in Fig. 4, and to prevent the water from entering the seams thus opened and forcing the oakum up inside the vessel and causing it to leak I secure to each side of the keel, so as to cover these seams, a strip or batten, D, of wood of a shape triangular, or nearly so, in cross-section, and slightly rounded at its lower edge, such shape being preferable, as it allows of the snugly fitting of the metal sheathing without cutting and injuring the sheets of felting placed thereunder, which cutting, when the sheathing has been applied without the batten over the garboard-seam, as heretofore,

has been the cause of serious leakage, great expense in getting into dry-dock to repair, and consequent delay to the voyage.

I prefer to use a dry white-pine or other soft-wood batten, as it will more readily absorb water and swell, so as to insure a tight joint.

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

The batten or strip D, lying alongside of and in combination with the keel B, and arranged to cover the garboard-seam *i*, substantially as set forth.

Witness my hand this 11th day of July, 1878.

BENJAMIN F. DELANO.

In presence of—
N. W. STEARNS,
P. E. TESCHEMACHER.