

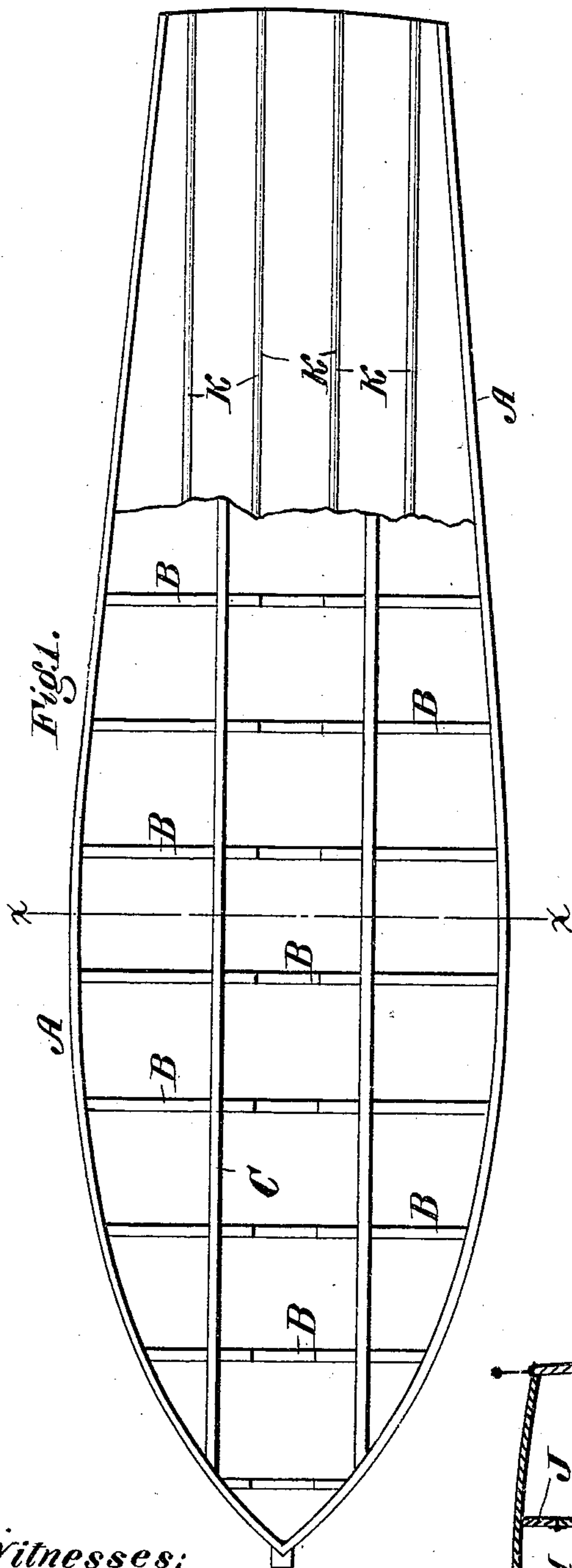
(Model.)

E. M. BOYNTON.

Construction of Ships, &c.

No. 230,998.

Patented Aug. 10, 1880.



Witnesses:
Donn P. Twitchell.
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Fig. 4.

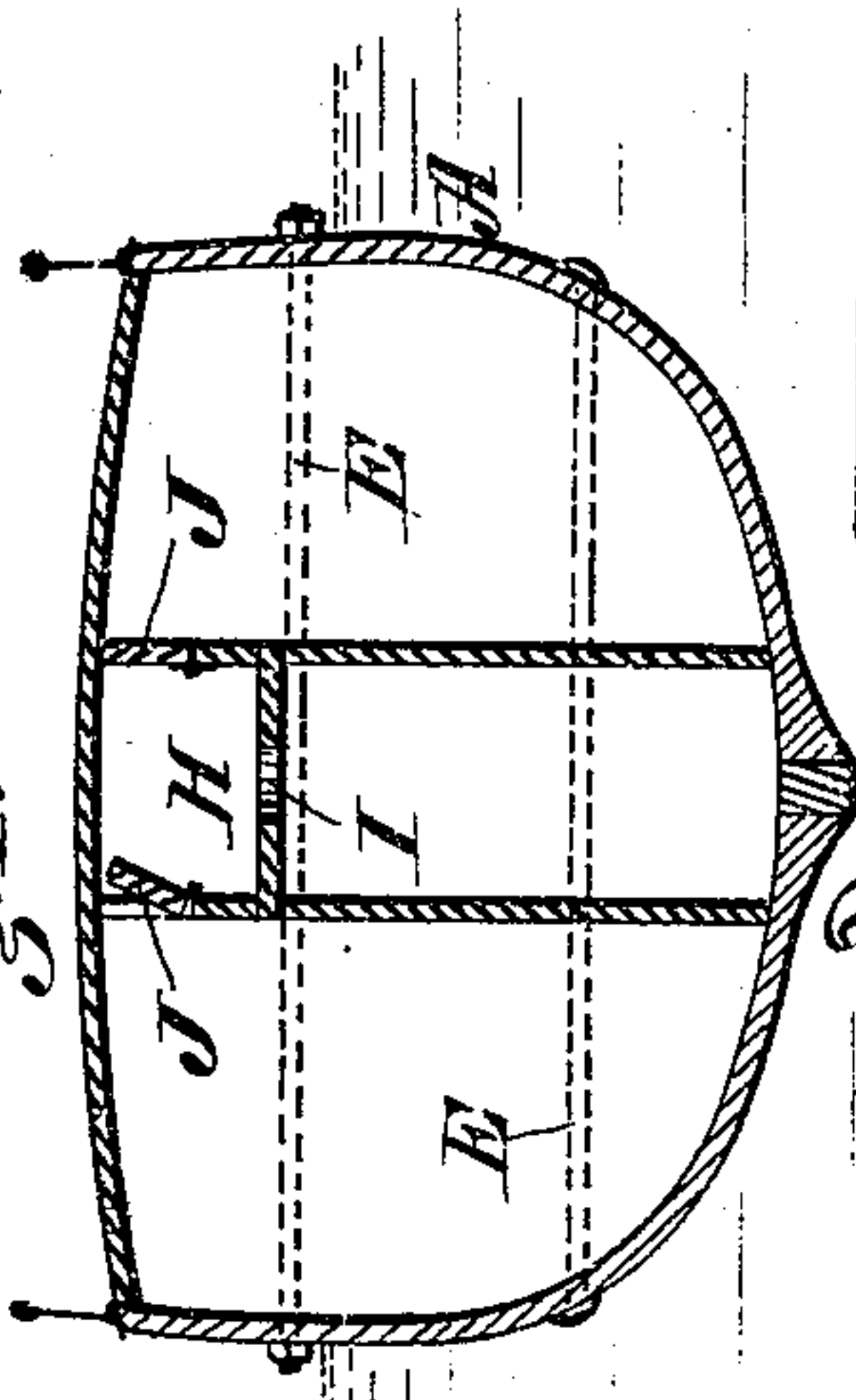


Fig. 2.

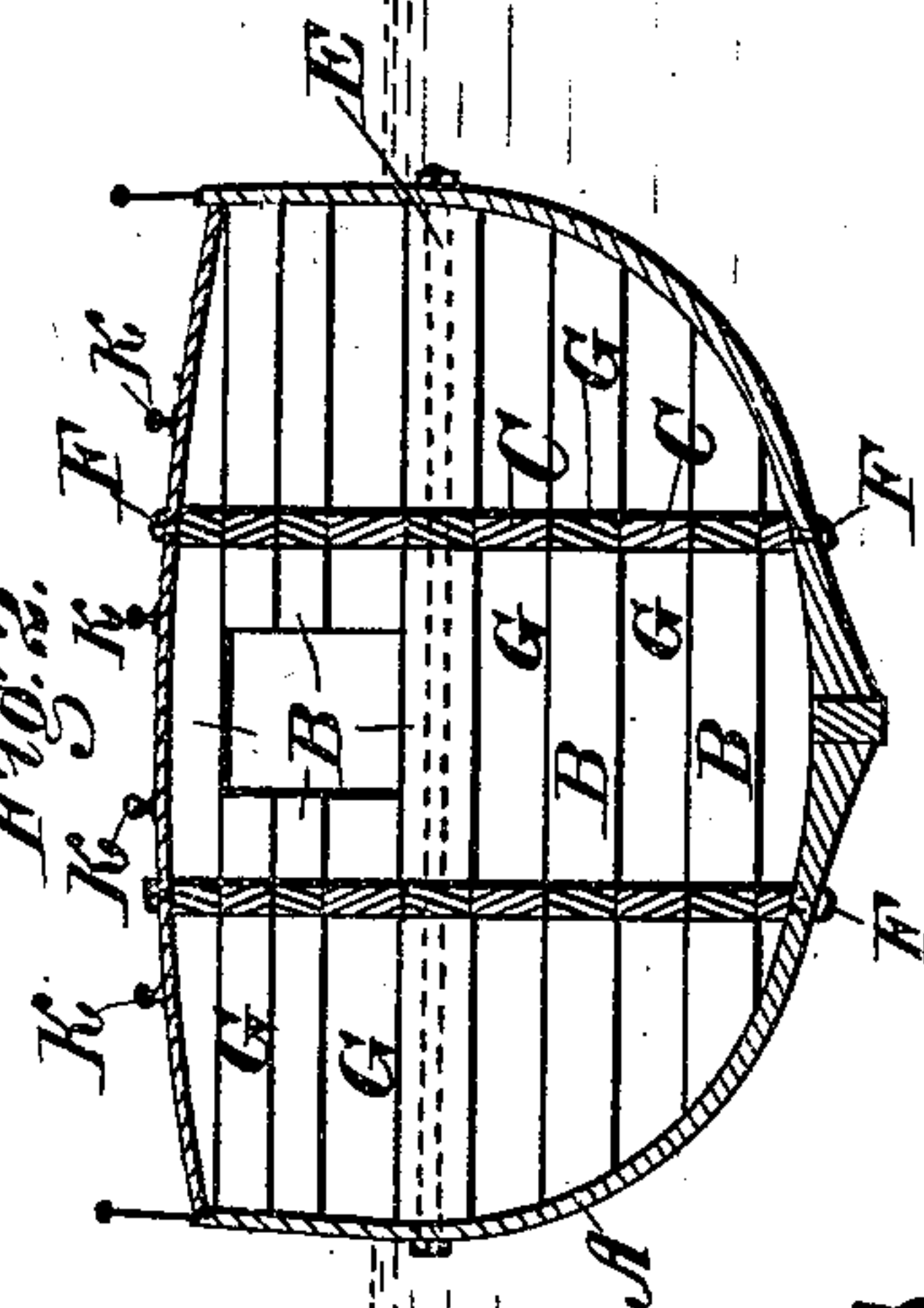


Fig. 3.

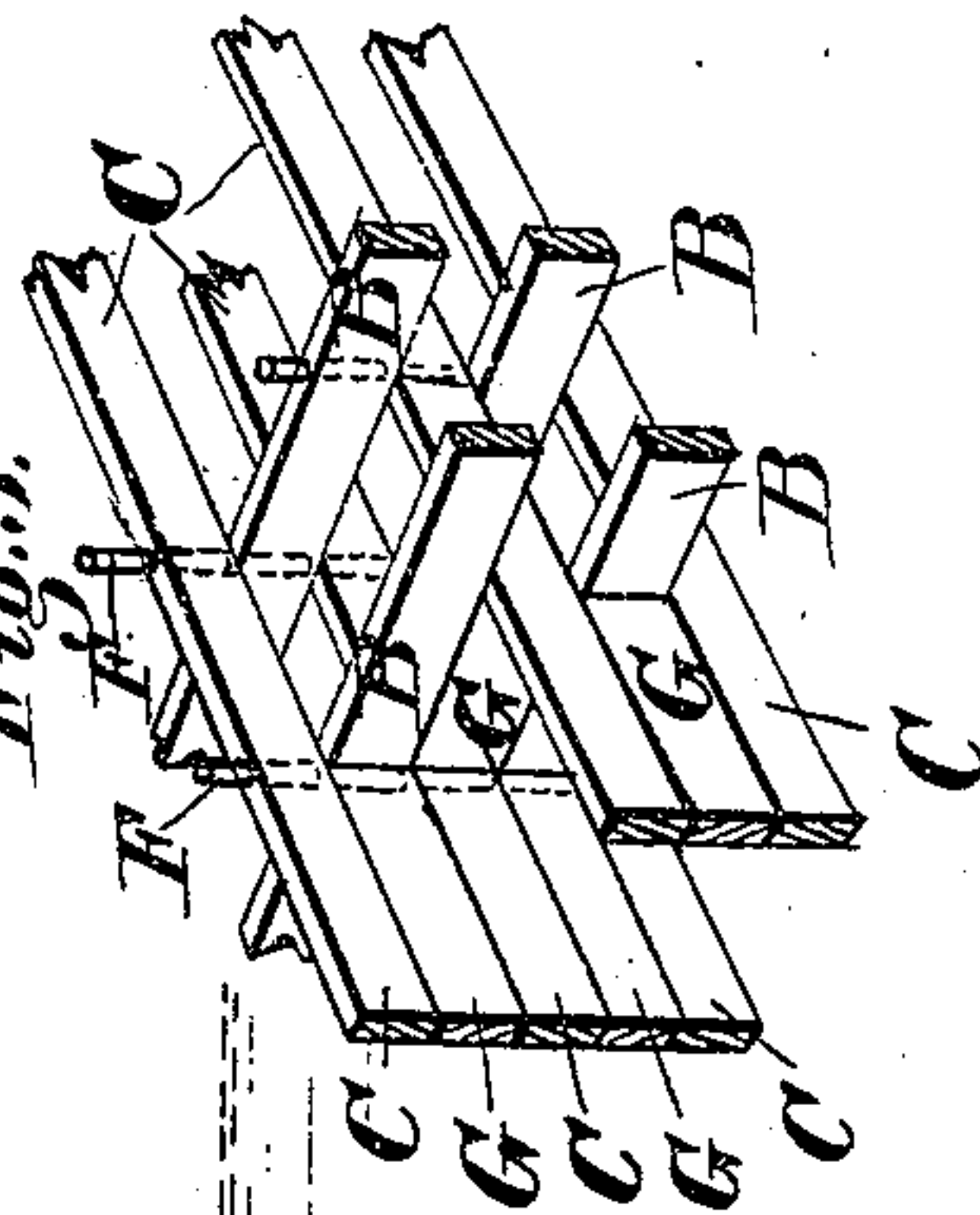
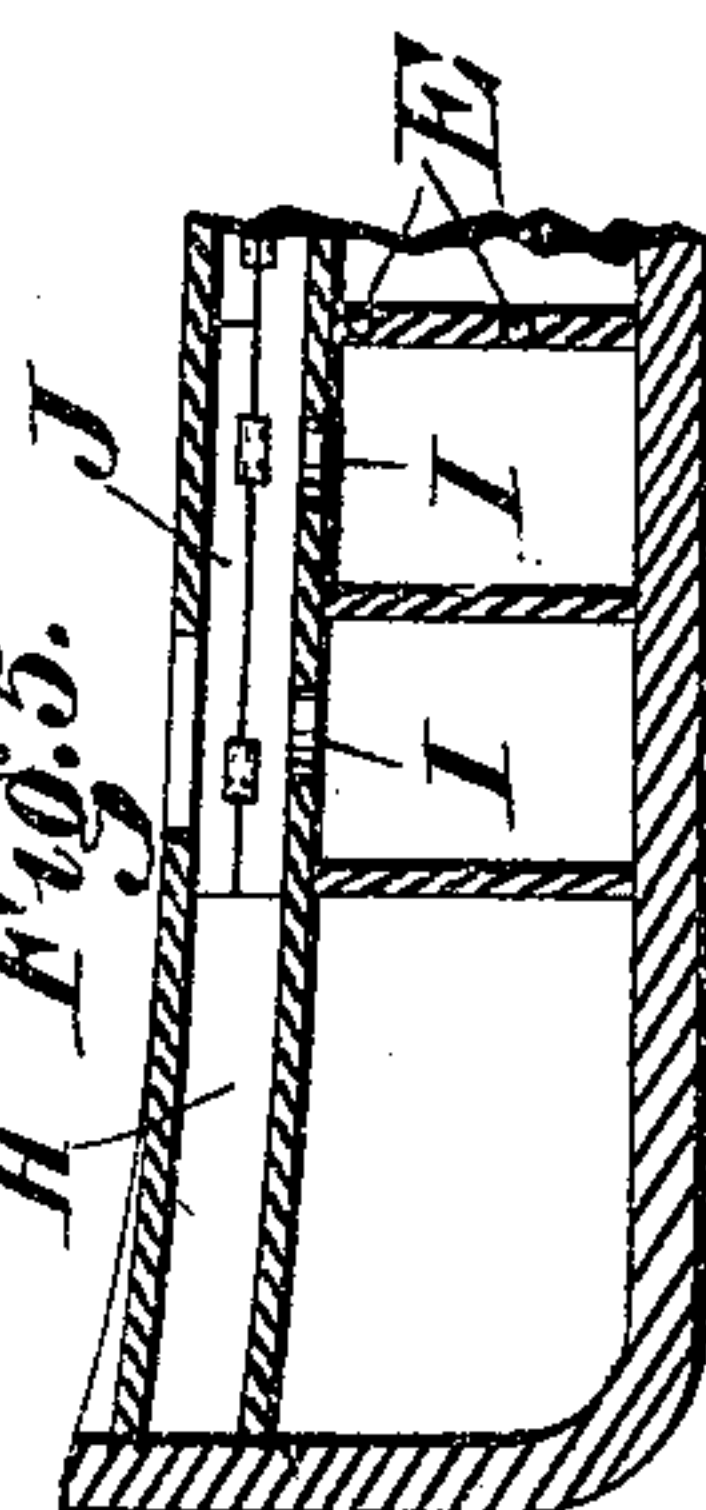


Fig. 5.



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EBEN M. BOYNTON, OF WEST NEWBURY, MASSACHUSETTS.

CONSTRUCTION OF SHIPS, &c.

SPECIFICATION forming part of Letters Patent No. 230,998, dated August 10, 1880.

Application filed April 10, 1880. (Model.)

To all whom it may concern:

Be it known that I, EBEN M. BOYNTON, of West Newbury, in the county of Essex and State of Massachusetts, have invented certain
5 Improvements in the Construction of Ships, &c., of which the following is a specification.

This invention has for its object the production of vessels or hulls for freight-carrying purposes which shall be extremely cheap in construction and which may suffer serious ruptures without danger of being sunk; and to
10 this end the invention consists in substituting for the usual ribs and knees a system of uncut crossed timbers, which serve to support the
15 outside shell or sheathing, and in using, in connection with these continuous timbers, a series of intermediate filling-pieces, whereby the hull is divided into a large number of vertical compartments.

Referring to the accompanying drawings, Figure 1 is a top-plan view of my improved hull with a portion of the deck removed to expose the compartments below; Fig. 2, a vertical cross-section on the line *xx*; Fig. 3, a perspective view, illustrating the manner in which
25 the crossed timbers and intermediate filling-pieces are arranged; Fig. 4, a cross-section, illustrating the manner in which the central passage or gangway may be arranged; Fig. 5,
30 a longitudinal vertical section, illustrating the same feature.

In constructing my improved hull it may be made of any ordinary or desirable form, with the outside shell or sheathing constructed of
35 wooden plank arranged in the ordinary manner. Instead, however, of supporting the shell or sheathing A by means of ribs and knees, as usual, I employ a system of uncut crossed timbers, B C, the former extending across the vessel from side to side and the latter extending
40 lengthwise from stem to stern.

As shown in the accompanying drawings, the timbers are arranged in a number of series or groups, each series consisting of a number of
45 timbers arranged one above another in the same vertical plane parallel with each other. There may be any suitable number of transverse and longitudinal series, but ordinarily it is found best to employ about sixteen trans-
50 verse series and two longitudinal series, the

latter arranged one each, side of the keel, at such distance apart as to divide the vessel into three nearly equal longitudinal parts.

In arranging the timbers I first place in position two longitudinal pieces or timbers at the
55 bottom at suitable distances apart. I then arrange across said longitudinal timbers, at suitable distances apart, one single transverse timber, B, one for each of the transverse series. Upon this transverse timber I arrange two
60 longitudinal timbers, placing them directly above the longitudinal timbers first placed in position. On this second longitudinal timber I arrange single transverse timbers directly
65 above those first placed in position, then apply longitudinal timbers, and so on successively and repeatedly, placing transverse and longitudinal timbers alternately in position in the manner explained, until the deck level is
70 reached, taking care that the uppermost timber shall run transversely, for the purpose of sustaining the deck.

The manner in which the two series of timbers are arranged in relation to each other and the manner in which the upper timbers support the deck are clearly represented in Figs.
75 1, 2, and 3.

It will be observed that the system of continuous or uncut timbers built up in the manner described forms an extremely rigid and
80 strong frame-work, filling the whole interior of the hull and giving to the same great stiffness and rigidity.

For the purpose of preventing the timbers from springing or moving from their places
85 and of holding the outer sheathing or planking firmly to its place, transverse tie-rods E are passed through the vessel from side to side in the manner shown in Fig. 2, and vertical bolts F pass down through the timbers B
90 C, at their points of intersection, as represented in Fig. 3.

For the purpose of giving additional stiffness and strength, and of dividing the same into a series of small independent compartments, filling-blocks or panels G are inserted
95 in the open spaces between the timbers in the manner represented in Figs. 2 and 3, these pieces being nailed or bolted securely in place and the seams around them tightly calked, so
100

as to render each compartment water-proof and effectually shutoff communication between it and the adjoining compartments.

For the purpose of giving ready access to the different compartments, I build in the center of the vessel, immediately below the deck, a central passage, H, having in its floor doors or openings I, into the central line of compartments, and in its sides doors or openings J into the side compartments, as represented in Fig. 4.

Among other purposes for which I employ my vessels is that of transporting loaded cars of coal, for which purpose the vessel is provided on its deck with four rails, K, arranged at equal distances apart. When a large number of cars are to be transported they may be run in two lines or trains, one upon each of the two outside rails, upon opposite sides of the boat, in which position they counterbalance each other and insure the proper trim or balance of the boat. When, however, a small number of cars are to be transported they may be run upon the two central rails, directly over the keel of the vessel. Thus it will be seen that by employing the four rails at equal distances apart the vessel is in effect provided with three separate tracks, so that its proper balance may be maintained under all circumstances.

I am aware that it has been proposed to construct solid hulls by laying timbers together in a solid compact mass, in successive layers, obliquely across each other, each timber to

have a small longitudinal hole through the center; and I am also aware that it has been proposed to construct the walls of vessels of numerous small blocks or timbers laid upon each other in such manner as to break joints, and bolted together, and I lay no claim thereto.

My construction is distinguishable from others in that I employ long uncut timbers arranged in numerous vertical series crossing each other in such manner as to form the hull and divide the same into numerous compartments or chambers, and at the same time tie the entire structure together in all directions.

Having thus described my invention, what I claim is—

1. A wooden hull without knees or ribs having its walls sustained and the entire structure tied together by the numerous series of continuous timbers arranged transversely and longitudinally in the hull between and across each other in the peculiar manner shown and described.

2. A wooden hull having its interior divided into a series of compartments by means of continuous transverse and longitudinal timbers B C, extending, respectively, from end to end and from side to side of the vessel, and intermediate filling-pieces or panels, in the manner shown and described.

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