2 Sheets—Sheet 1.

R. G. JONES.

Construction of Barges, Boats, &c.

No. 221,412. **Patented Nov. 11, 1879.**

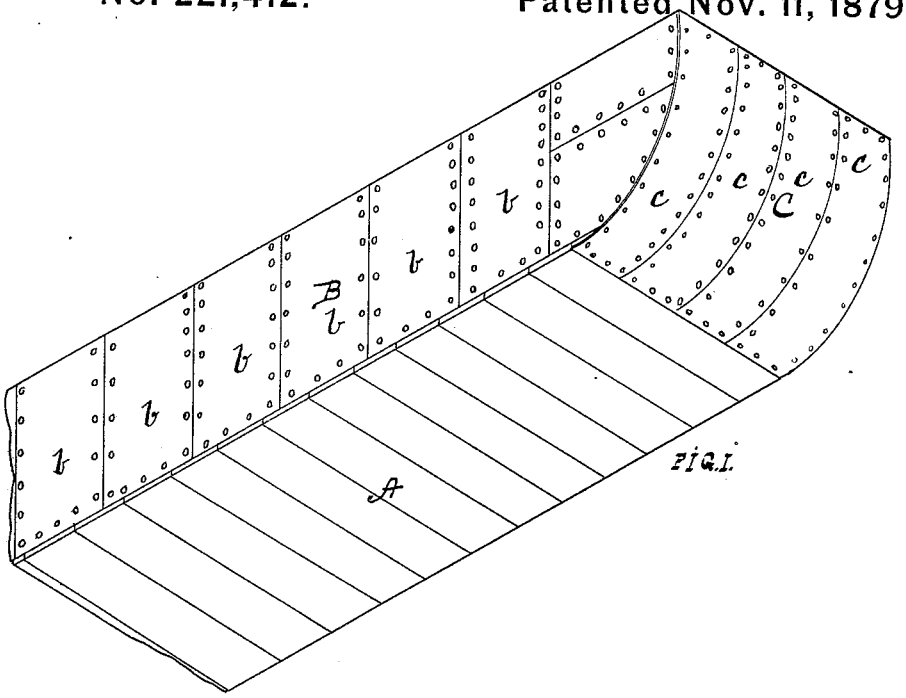


FIG. 1.

FIG. 2.

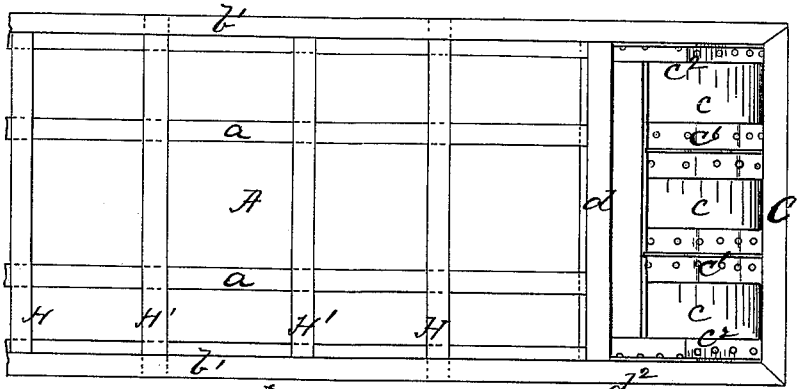
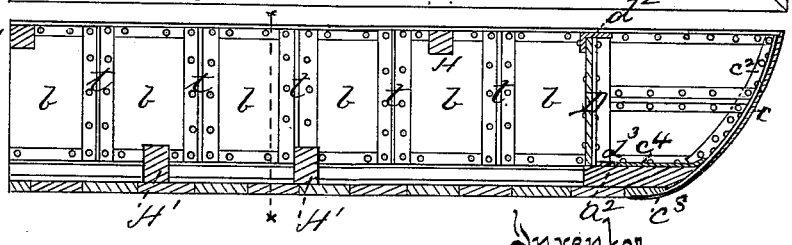


FIG. 3.



Witnesses

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2 Sheets—Sheet 2.

R. G. JONES.

Construction of Barges, Boats, &c.

No. 221,412. Patented Nov. 11, 1879.

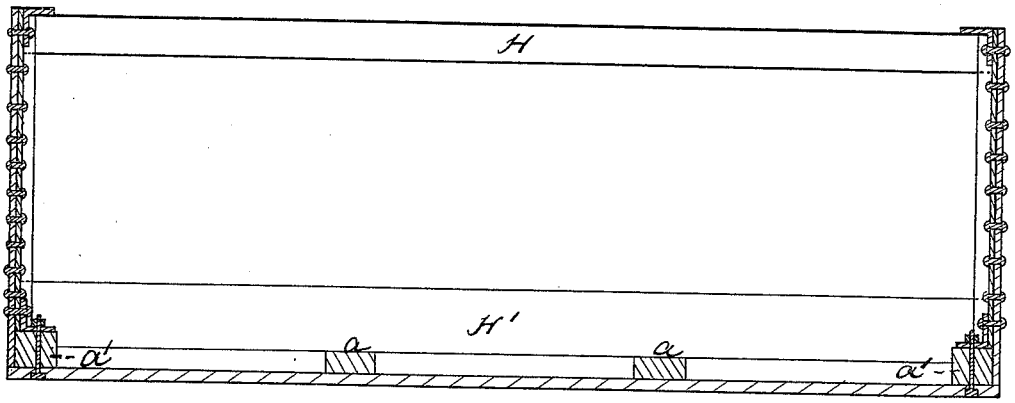

FIG. 4.

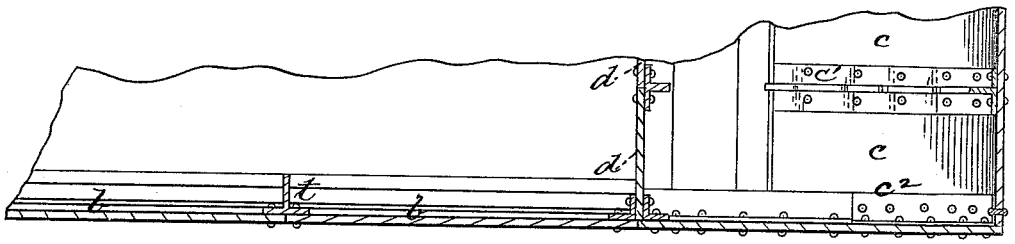

FIG. 5.

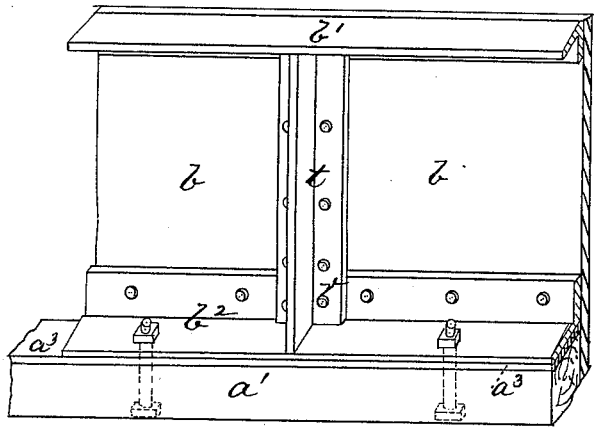

FIG. 6.

Witnesses.

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UNITED STATES PATENT OFFICE.

ROBERT G. JONES, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN CONSTRUCTION OF BARGES, BOATS, &c.

Specification forming part of Letters Patent No. **221,412**, dated November 11, 1879; application filed May 17, 1879.

To all whom it may concern:

Be it known that I, ROBERT G. JONES, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Construction of Barges, Boats, &c.; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of a section of a coal-barge or like boat embodying my invention. Fig. 2 is a top view of the same. Fig. 3 is a longitudinal vertical section on the line *x x*, Fig. 2. Fig. 4 is a transverse vertical section on the line *y y*, Fig. 2. Fig. 5 is a horizontal section on the line *z z*, Fig. 3. Fig. 6 is a detail view.

Like letters refer to like parts wherever they occur.

My invention relates to the construction of barges, boats, &c., adapted for the transportation of coal or any other merchandise in bulk, and for various other purposes; and it consists, first, in forming the barge or like vessel with wooden bottom and sectional metallic sides or ends, or sides and ends, whereby a boat of greater carrying capacity is obtained, as well as one of lighter draft, greater durability, and adapted to be quickly and easily repaired in case of accident; secondly, in constructing the barge or like boat with metallic bulk-heads and ends, whereby greater strength and buoyancy are obtained; thirdly, in interposing between the wooden bottom and metallic sides a wooden sill-piece or stringer, whereby a stronger and more effectual attachment of the bottom and sides is obtained; fourthly, in forming the metallic sides or ends, or sides and ends, of a barge or like boat of abutting metallic plates, connected by T-irons, which serve as ribs to strengthen the structure, and whose flanges form lap-plates to insure a perfect joint; finally, in details of construction, hereinafter more specifically set forth.

Coal-barges and like boats employed for the transportation of coal and other merchandise in bulk have heretofore, so far as I am aware, been constructed entirely of wood, and at a cost varying from twelve hundred to fifteen hundred dollars, according to size. The average life of such barges or boats is from five to six years, and the cost for repairing will average from one hundred and fifty to three hundred dollars each year. The greatest demand for this class of craft is upon shallow rivers, or those where the depth of water varies at different points along the water-course and at different times of the year—such rivers as are almost invariably filled with snags, sunken rocks, and like obstructions; and as the barges are used in number of from eight to twenty, more or less, bound together in what are termed "tows," it is at times impossible to avoid the obstructions.

For the above reasons the objections to wooden barges are: their liability to have their sides crushed in by the jamming of the boats together, or their ends or sides stove in by rocks, snags, &c.; the extensive nature of the injuries, owing to the character of the material; the cost, time, and labor involved in repairing, and the comparatively short life of the barge or boat.

The object of the present invention is, at a somewhat greater first cost, to provide a barge or like boat which shall exceed in durability those now in use, lasting on an average twice or three times as long; one much less liable to be injured by crushing, snags, rocks, &c., and which, if so injured, said injuries will be less extensive, requiring but limited repairs, which can be quickly and less expensively made; a barge or boat which will have greater capacity for the same proportions than those at present constructed, and one which will require less power to propel, so that larger tows may be taken.

I will now proceed to describe my invention, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A indicates the bottom, B the sides, and C the ends, of a coal or similar barge.

The bottom A, which is of wood, is provided with the longitudinal stringers *a* for securing the planking, and has at its margin, for the better attachment of the sides and ends, the longitudinal sill-pieces a' and cross-sills a^2. In connecting the sides and ends to the bottom it is advisable, in order to make a water-tight joint, to employ a packing of rubber, or its equivalent, as indicated at a^3, Fig. 6.

B indicates the sides of the barge, preferably

constructed in sections of iron or steel plates *b*, arranged so that their edges abut, each plate being riveted to one flange of a T-iron, *t*, so that the flanges of the T-iron form the lap-piece of the joint, while the stem of the T acts as an internal vertical rib to strengthen and brace the sides.

At the top and near the bottom of the plates the same are riveted to angle-irons b' b^2, which still further stiffen and brace the sides, the upper angle-iron, b', serving as a footway around the barge, while by means of the lower angle-iron, b^2, the bottom A and sides B are bolted or otherwise secured together, either with or without the interposed packing a^3, as preferred. The better to secure the parts, some of the rivets may pass through the angle-irons, the plates, and the flanges of the T-iron, as indicated at *r*, Fig. 6.

Arranged within the barge or boat, and extending across the same, are a series of cross-braces, H H′, the ends of those below, H′, resting upon the sills *a* and lower angle-iron, b^2, and the ends of those above, H, resting against the upper angle-irons, b', the several cross-braces being bolted to the angle-irons of the sides, so as to tie and strengthen the same, and at the same time enable the sides to resist any force calculated to either force them in or out.

The ends C of the barge or boat are formed in like manner as the sides, excepting that the plates are usually bent or curved to obtain the desired shape, and the ribs of the T-irons are notched, so that they may be bent to correspond to the curve given the end plate.

c c c indicate the sections or plates forming the ends, said plates arranged with abutting edges, and the joints formed between the plates by the T-irons c' and connected to the body by curved angle-irons c^2. These plates *c c* are extended under the wooden bottom A for a short distance, as at c^3, (or, if desired, may be extended as far back as the bulk-head,) and a plate, c^4, connected to the metallic end sections, *c*, projects over the bottom A within the bulk-head, thus inclosing the end sills of the bottom between two metallic plates, which protect and strengthen the bottom at the most exposed points.

D indicates the bulk-head, composed of a number of metallic plates or sections, *d*, connected and strengthened by T-irons d' and bordered by angle-irons d^2 d^3, the latter or lower of which, d^3, is bolted or otherwise secured to a cross-sill, a^2, and an interposed packing of rubber or equivalent material may, if found necessary, be employed to cause the bulk-head to form a water-tight joint with the wooden bottom.

A metallic bulk-head constructed substantially as specified will, in conjunction with the metallic end, form a perfectly water-tight compartment, which will add buoyancy to the barge; and should the metallic end walls be broken in, the bulk-head will prevent the entrance of water into the barge proper.

The advantages of my invention are: the lightness of draft and increased carrying capacity of the boat or barge; its greater strength and durability; the limited nature of any injuries likely to be received from rocks, snags, &c., and the facility with which repairs can be made.

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

1. A barge or like boat having sectional metallic sides or ends, or sides and ends, and a wooden bottom, substantially as and for the purpose specified.

2. The combination, with a barge or like boat having a wooden bottom and metallic ends, of a metallic bulk-head, substantially as and for the purpose specified.

3. In a barge or like boat, the combination, with a wooden bottom and metallic sides or ends, or sides and ends, of wooden sills interposed between the metallic sections and the wooden bottom, substantially as and for the purpose specified.

4. A barge or boat of like construction having sectional metallic sides or ends, or sides and ends, the metallic sections jointed by abutting the edges of the plates and riveting them to a T-iron, substantially as and for the purpose specified.

5. In a barge or like boat having sectional metallic sides, the combination, with the metallic sides, of the top and bottom angle-irons, substantially as and for the purpose specified.

6. In a boat or barge having a wooden bottom and metallic ends, the extended end wall and covering-plate, adapted to inclose and protect the bottom, substantially as and for the purpose specified.

In testimony whereof I, the said ROBERT G. JONES, have hereunto set my hand.

ROBERT G. JONES.

Witnesses:

F. W. RITTER, Jr.,

R. H. WHITTLESEY.