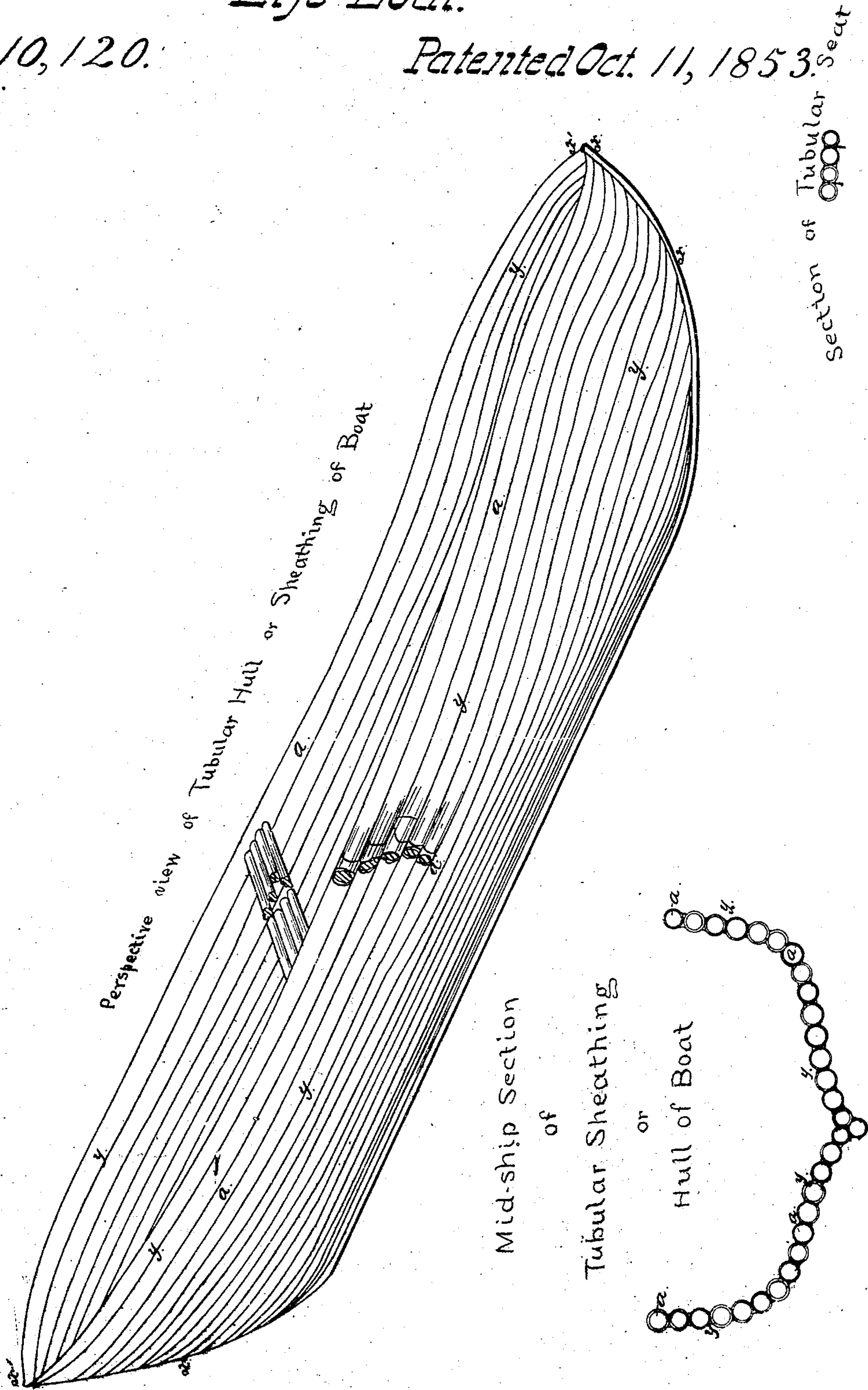


*Y. Foreman.*  
*Life Boat.*

*Nº 10,120.*

*Patented Oct. 11, 1853.*





# UNITED STATES PATENT OFFICE.

YELLAND FOREMAN, OF NEW YORK, N. Y.

## LIFE-BOAT.

Specification of Letters Patent No. 10,120, dated October 11, 1853.

*To all whom it may concern:*

Be it known that I, YELLAND FOREMAN, of the city, county, and State of New York, have invented certain new and valuable Improvements in the Method of Constructing Metallic Boats, the especial and distinguishing feature whereof is that I build them wholly, or nearly so, from metallic reservoirs or receptacles of buoyant power by which they are made to possess greater reliability as life-boats and obtain other important advantages hereinafter set forth.

The nature of these improvements consists in constructing the frames, or hulls, or, as it may be considered, the shells, or sheathing, as well as the seats of boats,—especially those known as life boats,—entirely, or nearly so, of metallic tubes; whereby I give to such boats a large amount of safety distributed, or insulated buoyant power, and at the same time obtain the utmost amount of interior space for “storage,” and greater strength, stiffness, &c., combined with the buoyancy mentioned than could be obtained from any other mode of construction even by a large addition to the weight of metal employed, and a consequent serious increase of cost.

To enable others to construct boats on the plan I have invented I will more fully describe the same, reference being had to the drawing accompanying, and making part of this specification, wherein—

Figure 1 represents a perspective view of my metallic tubular life boat, with a portion of the tubes, “amidships” broken away—Fig. 2 a “midship” section of the body of such boat—and Fig. 3 a section of the tubular seat, also shown in perspective in Fig. 1.

Like letters of reference denote like parts in all the figures.

The tubes being “formed up” of any desirable metal, in the usual manner, or rolled, or “drawn” to a suitable length, their ends are either “gored,” flattened, and brazed, or soldered, at the joints thus formed—or tapered, by slitting the same, and brazing, &c., the joint, or seam; or otherwise by a process for tapering well known to the manufacturers of tubing, not necessary here to describe, and this portion of the work being properly completed the tubes are thereby rendered air tight. The tubes being now bent and molded to suit their respective positions in the body of the boat, the adjoin-

ing and appropriate extremities of every pair as at X, X', may be connected and permanently held together by welding, brazing, &c., and so on with each pair of tubes composing every “stroke”—and a model or mold—of the boat to be built—of suitable dimensions, &c., being now laid, gunwale down, the appropriate “strakes” are lifted and let down over the same, until the entire tubular body of my metallic boat is measurably formed. All of the tubes may now be held temporarily but securely together by clamps, adapted to the form of the boat, and, thus fastened, may now be lifted off from the mold mentioned, and the respective extremities, at the stem and stern, of every “strake,” as X, X', permanently bound and held, each to the other, by welding (if of iron) at a suitable heat.

The longitudinal seams, as at Y, Y, may now be thoroughly closed, and the tubes *a, a*, fastened and confined to each other by brazing or soft-soldering, the former of which may be effected very rapidly over a suitable forge or furnace, and, perhaps, preferable to the latter, for reasons of greater economy and strength, yielded with a less weight of metallic fastening.

The entire hull of the boat being now completed, in the manner explained, so far as the tubes are concerned, the clamps or temporary fastenings may be removed,—and a keel, and stem and stern pieces, swaged, or otherwise shaped, from suitable sheet metal, being now appropriately placed, are there fastened to the tubular body of the boat—the former by brazing, or soldering, and the latter (spanning the extremities of the tubes or “strakes”) by riveting through all, suitable rivet-holes being previously punched for that purpose.

I may observe that where welding is impracticable, from the nature of the metal composing the tubes, the necessary fastening will be obtained by riveting, &c., as before explained.

The manner of placing and fastening the remaining fixtures of a boat being very simple, and such as likely to occur to any person constructing the body of my tubular boat, is not necessary herein to describe,—with the exception of the tubular seats. These last, composed of three or more tubes of suitable length, joined laterally by brazing or soldering, and made air tight at the ends, would thereat be provided with one or



more hooks, which would be inserted in suitable eyes, brazed or otherwise fastened on the inside of the boat, so that such seats could be readily detached from the latter, and (having, according to their size, a net buoyancy capable of sustaining one or more persons in the water) made quickly available as life buoys, in any contingency calling for such.

The boat being thus advisably and practically built, will be perceived to possess extraordinary merits.

By the plan I have invented I am enabled to employ—over any other,—a less weight of metal, because it has the form of greatest strength and stiffness, as a cylindrical tube or tubes, (although other than a cylindrical cross-section of tubes might be desirable in some cases) and by the device of a homogeneous and continuous fastening, mutually binding, supporting, and bracing my tubular boat in all its parts, and as a whole, any framework, as ribs, or fretlocks, is avoided, and so the largest amount of net buoyancy is obtained: while the distribution of that buoyant power throughout the 20, 30, or 40 metallic tubes, composing the hull or body of my boat, gives the latter a vast superiority and safety over any other plan, and which may again be immensely increased by dividing each tube (in itself a distinct air chamber) into numerous air tight compartments, which may be effected by inserting, at the time of making such tube, a number of metallic, wood, or even elastic disks, or diaphragms, at proper and frequent intervals; and the boat thus constructed and arranged, it is evident that fracture of any one or more tubes will only have deprived my boat of a small fraction of its net buoyancy.

Having thus sufficiently described the operation of manufacturing my metallic tubular life boat, I will state that I am aware that attempts have been made to give to boats large buoyant power by the employment of metallic chambers, cylinders, &c.: but these have always been introduced as

extraneous, and so many excrescences to the same, and adding in themselves largely to the weight of such boat, without yielding a “per contra” of strength: and moreover, by their bulk, contingent on the method of using them, detracting largely from the “stowage” and carrying capacity of such vessel, beside adding greatly to its cost.

I am also aware that flexible boats have been constructed in which tubes have been employed, and running from stem to stern, formed (I believe) by crimping two or more sheets of elastic cloth, and joining the plane surfaces of the latter by an elastic gum or otherwise, leaving the crimped convexities outward,—thus giving a series of flexible tubes, or chambers, which to meet the purpose of their application had afterward to be inflated, through valves, or cocks inserted in them, by bellows, &c.

The weight, valuable space occupied, and cost of the first method mentioned,—and the perishability of material, want of reliability, and the very flexibility of the second, have proved almost physical objections to the use of either, and both are now virtually abandoned.

Both plans are widely and distinctly different from the one I have invented and described, in which

What I claim, and desire to secure by Letters Patent of the United States, is—

1. Constructing the body of my life boat wholly of metallic tubes, brazed or similarly united throughout, thus affording a watertight and solid metallic connection, and mutual bracing of every part, as shown; whereby are attained the objects explained in a compact and generally advantageous manner.

2. I further claim in combination with such boat, the detachable, tubular, seat as described.

YELLAND FOREMAN.

Witnesses:

BENJ. COLLINS,  
HENRY B. RENWICK.