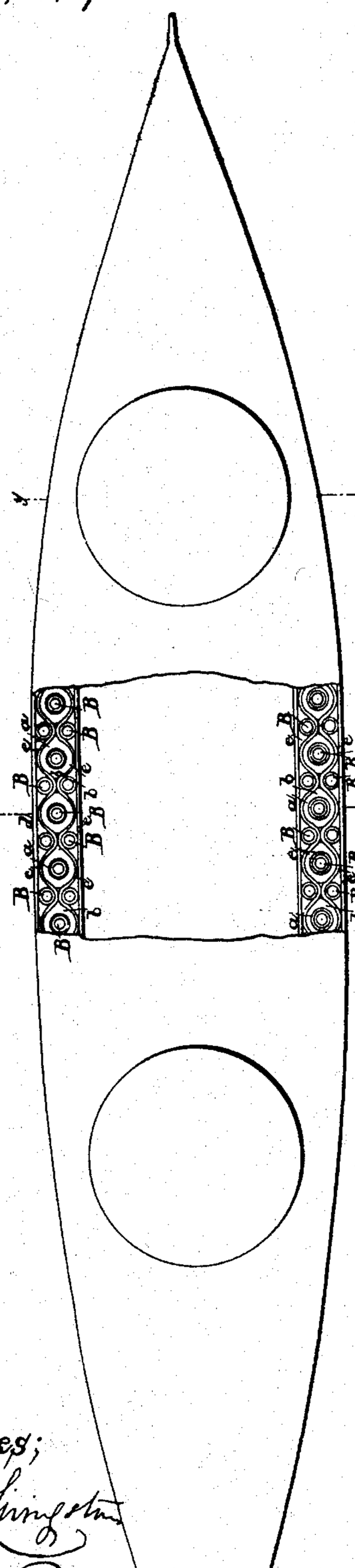
O. Collins.

Armor Clad.

No. 42,349. Patented Apr. 19, 1864.



Witnesses;

M. M. Livingston

Jos. W. Reed.

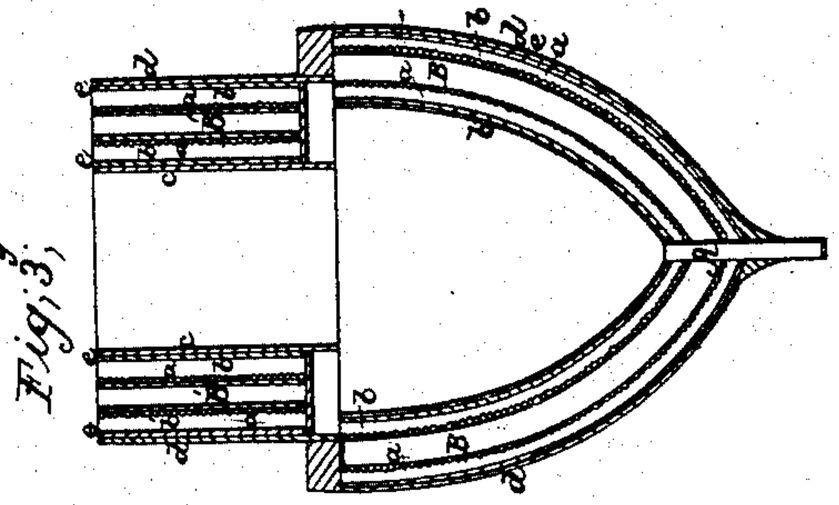


Fig. 3.

Fig. 1.

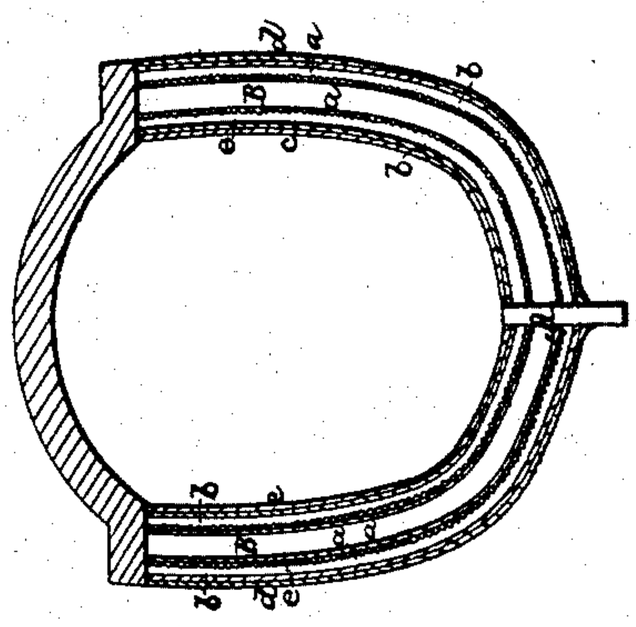


Fig. 2.

Inventor;

Orrin Collins

UNITED STATES PATENT OFFICE.

OWEN COLLINS, OF NEW YORK, N. Y.

IMPROVED CONSTRUCTION FOR DEFENSE OF SHIPS OF WAR AND OF DEFENSIVE ARMOR FOR FORTIFICATIONS.

Specification forming part of Letters Patent No. **42,349**, dated April 19, 1864.

To all whom it may concern:

Be it known that I, OWEN COLLINS, of the city, county, and State of New York, have invented a new and useful Improvement in the Construction of Vessels of War and Fortifications; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of a vessel constructed according to my invention, partly in section. Fig. 2 is a transverse vertical section of the same in the plane indicated by the line *x x* in Fig. 1. Fig. 3 is a transverse vertical section of the same in the plane indicated by the line *y y* in Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

The principal object of my invention is to obtain great impenetrability to projectiles with little weight, and consequently with a high degree of buoyancy; and to this end it consists, firstly, in the employment, in the hull and turrets of a vessel, of a frame composed of independent wrought-iron tubes arranged in the form of ribs; secondly, in the re-enforcement of such tubes by coils of steel wire, to give them greater strength and to aid by its elasticity in increasing the resisting power of the tubes; thirdly, in the employment, between such tubes, of casings of india-rubber, or any compound thereof, to give them greater capability of resisting the impact of projectiles; and, fourthly, in the employment, in combination with such tubes, of plates of corrugated iron applied in such manner as to secure the said tubes together, and to attach inner and outer skins of smooth iron plates.

To enable others skilled in the art to construct vessels according to my invention, I will proceed to describe it with reference to the drawings.

A is the keelson of the vessel, and B B the independent wrought-iron tubular ribs, forming the frame of the hull. These ribs may be screwed into the keelson, and made in sections of suitable length screwed together like wrought-iron steam and gas tubing. Two or more series of such tubes may be used, but I prefer to use not less than three series, those of each series arranged opposite the interstices between those of the next series, as shown in Fig. 1. *a a* are the coils of steel wire wound tightly round the tubes, and *b b* are the india-rubber casings consisting of tubes drawn tightly over the exteriors of the coils *a a* of wire. The coils of wire and casings of india-rubber are shown applied only to the central series of tubes; but they may be applied to all. *c* is the inner, and *d* the outer skin, made of smooth wrought-iron plates of any suitable size and riveted together in any suitable manner. *e e* are the corrugated plates which secure the tubular ribs together and secure the inner and outer skins to them. These plates are corrugated to conform to the tubes, as shown in Fig. 1, and are riveted together in the lines where they meet, and have the skins *c* and *d* riveted to them, and in this way they bind the whole structure together.

The turrets have their sides constructed, in a similar manner to the hull of the vessel, of tubular ribs B B, forming a framing, and surrounded by similar coils, *a a*, of steel wire, and casings *b b*, of india-rubber, and with similar inner and outer skins, *c* and *d*, and corrugated plates *e e*.

This construction of the hulls and sides of the turrets gives them an immense power of resistance to projectiles in proportion to the weight of metals employed, and in the hulls gives great strength and buoyancy. In case of any part of the hull being penetrated or the tubes broken by projectiles the other tubes constitute water-tight compartments and keep the vessel afloat.

The tubes, or certain of them, may be fitted with suitable valves, to admit water to sink the vessel to a desirable depth, to protect all but the extreme upper portion of the hull from projectiles by its being submerged.

The deck of the vessel and roofs of the turrets may be constructed in a similar manner to the hull and sides of the turrets, the tubes being arranged in arched or other form.

The same kind of structure is applicable to land fortifications.

I am aware that vessels have before been constructed with hollow metallic armor in tubular form. This, therefore, I do not claim; but I am not aware of any previous instance in which a vessel's armor has been formed of independent tubular ribs of wrought-iron in

the manner hereinbefore described, so that injury to one will not impair or endanger others, and so that the said hollow ribs may afford means of raising or lowering a vessel in the water at will, and also constitute an armor of very great strength in proportion to its weight.

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

1. The employment, in the hull and turrets of a vessel, or in fortifications, of a framing composed of independent tubular wrought-iron ribs, B B constructed and arranged as herein described.

2. The external coils of steel wire, *a a*, in combination of the aforesaid independent wrought-iron tubular ribs, as and for the purpose herein set forth.

3. The employment, in combination with the independent tubular ribs B B, of surrounding casings *b b*, of india-rubber or its compound, substantially as and for the purpose herein set forth.

4. The combination of the framing of wrought iron tubes B B, inner and outer skins, *c d*, and corrugated plates *e e*, substantially as herein specified.

OWEN COLLINS.

Witnesses:

M. M. LIVINGSTON,

GEO. W. REED.