

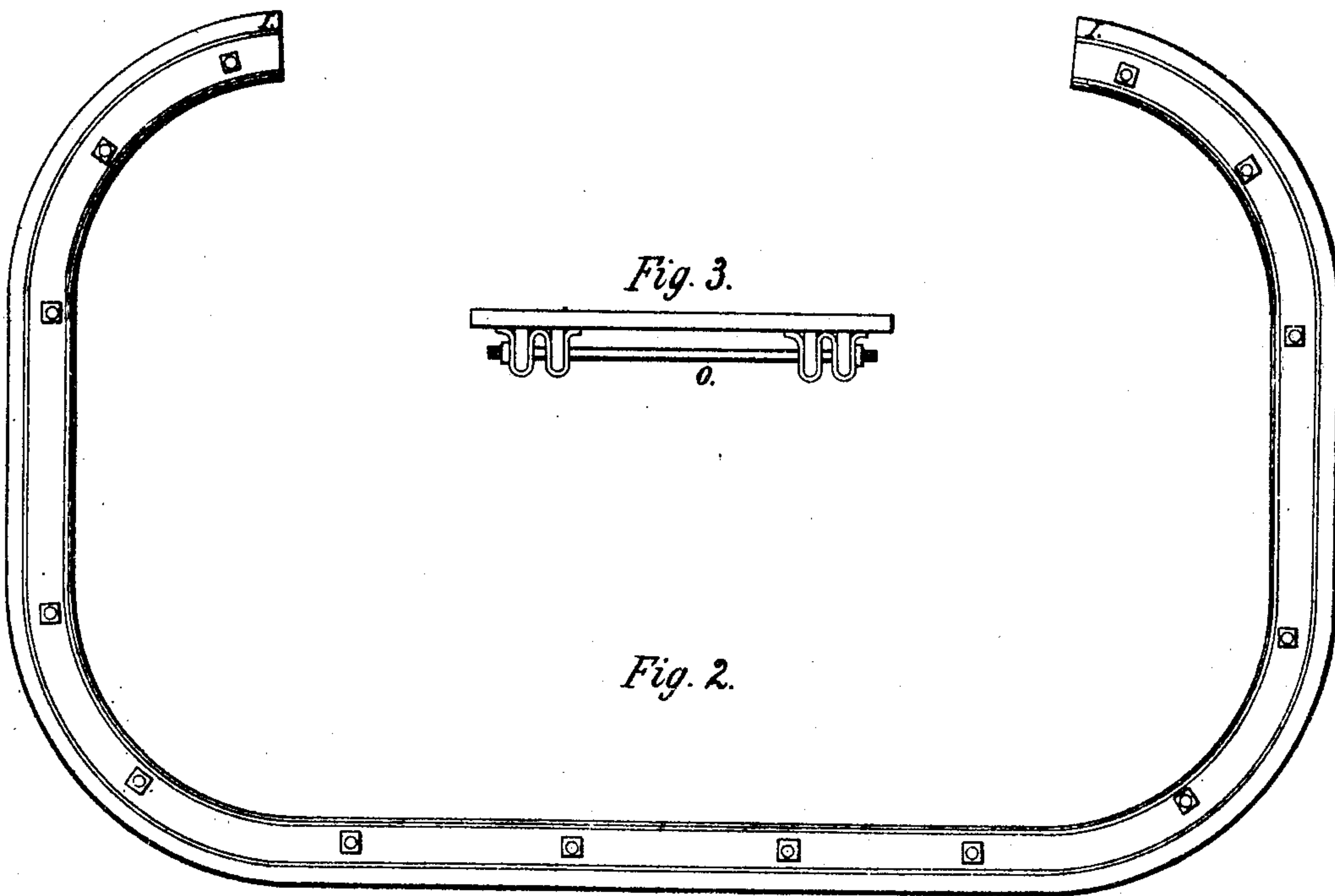
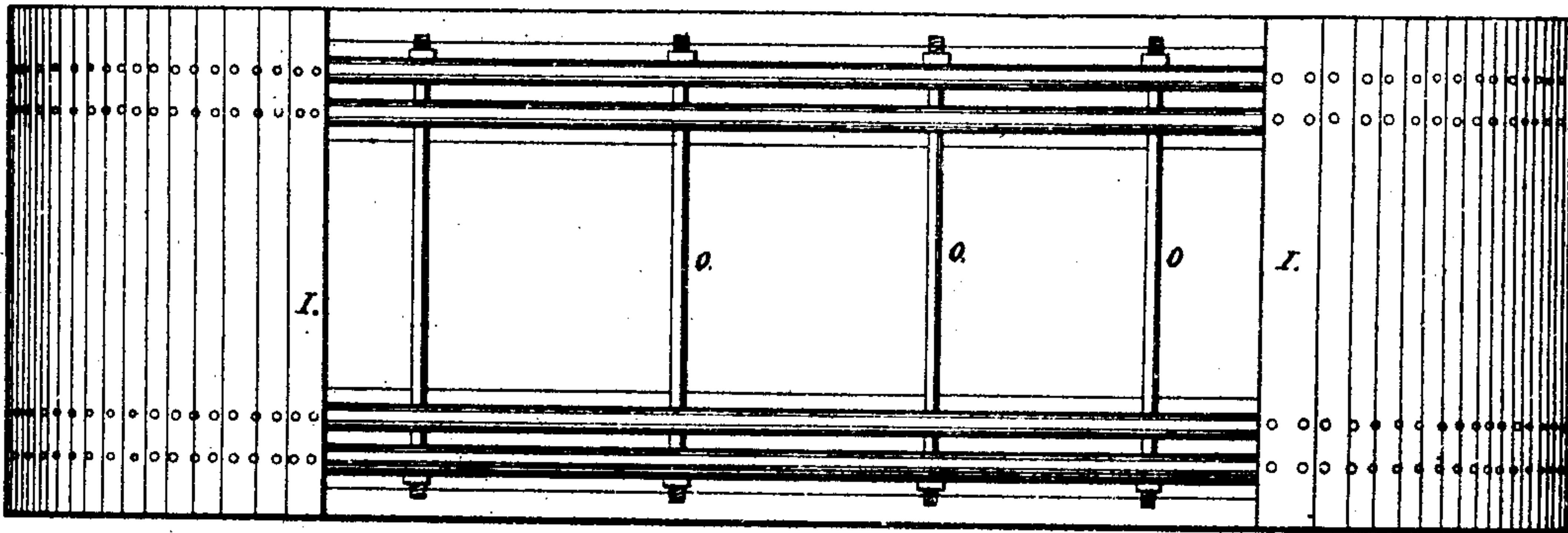
No. 41,167.

PATENTED JAN. 5, 1864.

M. J. MONTGOMERY.

WAR VESSEL, THE PARTS APPLYING TO OTHER STRUCTURES FOR DEFENSE.

2 SHEETS—SHEET 1.



Witnesses.
Richard Montgomery
C. A. Sawyer

Inventor.
M. J. Montgomery

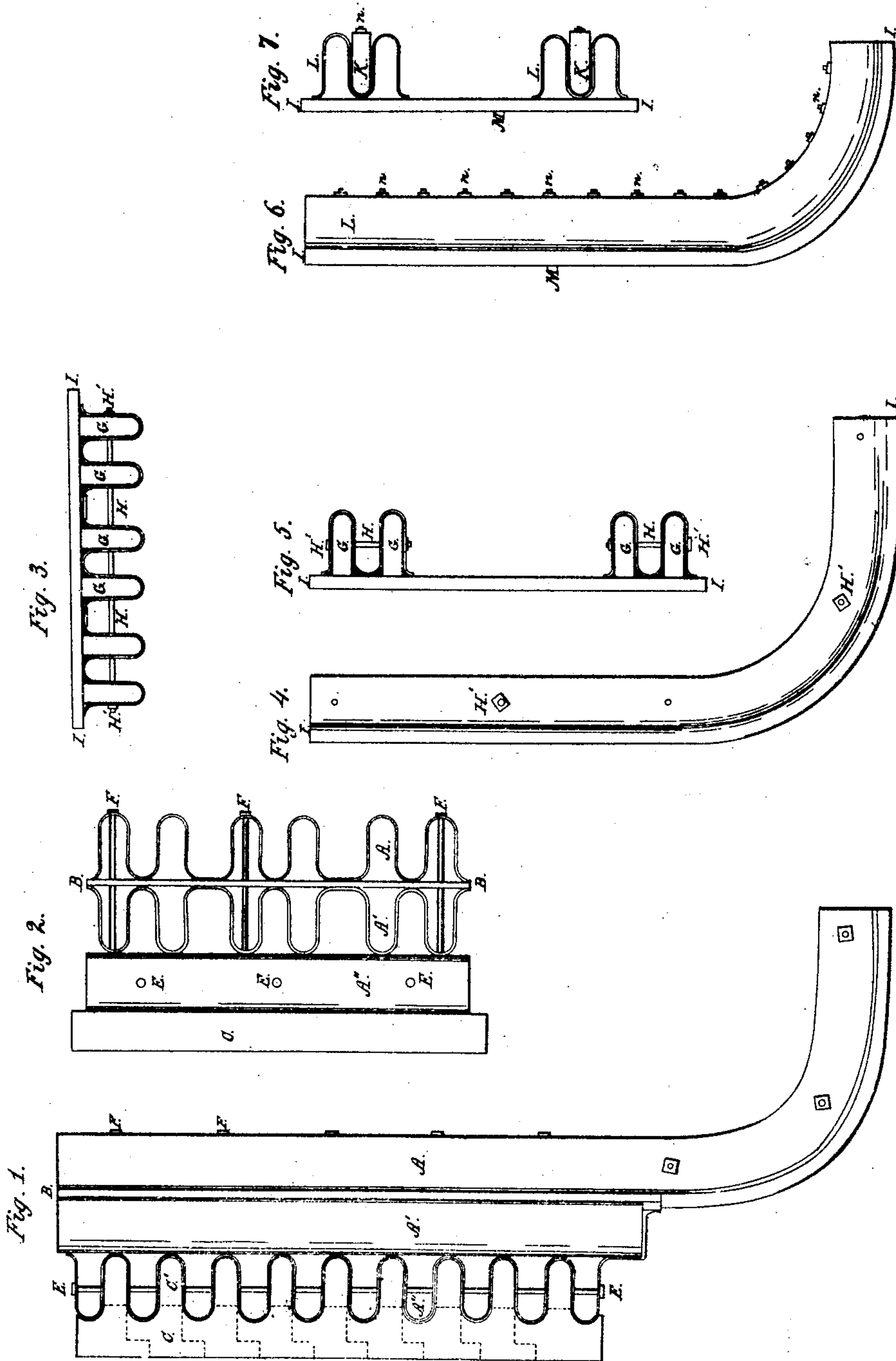
No. 41,167.

PATENTED JAN. 5, 1864.

M. J. MONTGOMERY.

WAR VESSEL, THE PARTS APPLYING TO OTHER STRUCTURES FOR DEFENSE.

2 SHEETS—SHEET 2.



Witnesses,
Richard Montgomery
G. C. Sawyer

Inventor,
M. J. Montgomery

UNITED STATES PATENT OFFICE.

MARY JANE MONTGOMERY, OF NEW YORK, N. Y.

IMPROVED WAR-VESSEL, THE PARTS APPLYING TO OTHER STRUCTURES FOR DEFENSE.

Specification forming part of Letters Patent No. 41,167, dated January 5, 1864.

To all whom it may concern:

Be it known that I, MARY JANE MONTGOMERY, of the city, county, and State of New York, have invented certain Improvements War-Vessels and other Structures; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists, first, of an improvement in the nature and arrangement of the materials used as iron or steel clad armor in all kinds of vessels of war; and, second, of an improved mode of planking the sides and bottom of ships or vessels of all kinds, and of applying planking to all other structures where corrugated beam-iron is used as ribs, beams, rafters, &c.

To enable others skilled in the arts to make and use my invention, I will proceed to describe it fully and in such detail that any one skilled in such matters can comprehend, make, construct, and use it.

In the drawings hereto attached and forming a part of this specification, on Sheet 1, Figure I is a view of a vertical section of one side of a war-vessel, showing my improvement in iron or steel clad armor. Fig. II is a view of a transverse or horizontal section of the same. Figs. III, IV, V, VI, and VII are sections showing several modes of applying planking to corrugated ribs, beams, rafters, &c. On Sheet 2, Figs. I, II, and III represent other forms to which planking can be applied.

In Figs. I and II of Sheet 1, A, A', and A'' are three successive tiers of corrugated beams, A being the inner one, or that next the hold of the vessel, A'' the outer one, upon which the iron or steel plating is applied, and A' the intermediate one, lying between A and A''. In the drawings, A and A' are shown applied vertically with an interposed plane or flat plate, B, between them, and A'' applied horizontally with no interposed plate between it and A'; but I do not confine myself to this particular arrangement. The direction of the corrugations may be altered and another plate similar to B may be placed between A' and A''. In whatever manner they may be arranged, however, I brace the whole together firmly by screw-bolts, as shown at F F F. On the outside of these corrugated beams I apply a series of imbricated plates, C, as the armor or

shield proper, having ribs C', which penetrate and fit into the recesses formed on the outer face of the corrugated beams A''. This armor is firmly fastened to and upon the corrugated structure by means of strong bolts E E E, passing through the ribs C' and the corrugations of A''.

It has heretofore been proposed to make this armor C and C' of one material—that is, iron; but to give it the necessary capacity for resistance required, when made of this material the plates must be very thick, and, as a consequence, add greatly to the entire weight of the defensive structure. To obviate this as far as possible without lessening the armor's capacity for resistance, I propose to make these plates of steel, or, what would accomplish about the same purpose, roll them with a surface of steel of proper thickness, while the legs or ribs C' remain, as at present, of wrought-iron.

It will be observed (Fig. I, Sheet 1) that the armor, as usual, extends downward only so far as to give proper protection to the sides of the vessel. The balance of the hull below this in war-vessels has but one set, A, of the corrugated beams, the others being unnecessary in the construction of this part of the hull. It is necessary, however, that the corrugations of this part should be covered by plates or planking to give greater evenness of surface, while strengthening the whole structure. Experience has shown that plating this part with iron is very objectionable, on account of barnacles, oysters, and other sea animals, which attach themselves thereto in such quantities as to seriously affect the sailing qualities of the vessels; hence it is desirable to use planking even in iron ships, where it can be done, as this may be protected, as usually done in wooden ships, by coppering. I accomplish this in two ways, as shown in Figs. III, IV, and V in one way, and Figs. VI and VII in the other. Fig. III shows one of these plans as applied to the lower portion of the hull of a war-vessel, having an armor on its sides, as represented in Fig. I, and the corrugated beams connected or brought close together. Figs. IV and V show the same plan of fastening the planking to the corrugated beams where these are more or less distant from each other. Figs. VI and VII is my other mode of attaching the planking, and

show only its use in cases where the beams are more or less distant from each other. Of course, the same plan may be used where the beams are continuous over the entire side of the hull.

Figs. IV and V, as well as Figs. VI and VII, are intended to represent sections of the sides of a vessel not protected by the armor. (Shown in Fig. I.)

In the first plan, as shown in Figs. III, IV, V, I introduce tongues of wood, similar in form to the tongues C' of Fig. I, into the recesses of the corrugations opening outwardly, having their outer faces flush with—that is, in the same plane or curve as—that formed by the convex faces of the corrugations. These I fasten in place and to the corrugations by means of bolts, as seen in Figs. III and V. In these two figures, and also Fig. IV, G G G indicate the tongues, H H H the bolts, and H' H' H' the heads and nuts thereof. This, then, gives me lines of wooden surfaces corresponding exactly to the contour of the vessel, to which I can and do bolt or spike the planking I I I (of the same figures) as readily and as firmly as if operating upon an ordinary wooden hull.

In my second plan I introduce the tongues into the inner curvature of the corrugated beams, as seen at Fig. VII, letter K, (same sheet,) apply the planking directly upon the outer facing curvatures of the corrugated beams, and secure it there by bolts or spikes passing through and through the corrugated metal into or through the tongue. In the latter case the bolt may be secured by a nut, as seen at n n, Figs. VI and VII. In this case, of course, the corrugated metal will have to be drilled to admit the passage of the bolts or pins from the planking to the wooden tongues.

In these Figs. VI and VII, L L represent the corrugated beams and M M the planking.

Figs. I, II, and III of Sheet 2 are introduced to show the adaptability of this invention to any (the most irregular) form of structure. These drawings show the planking applied to the exterior, but with a very slight modification it could be applied to the interior, the principle in both cases being the same. Conduits, tanks, and vessels of all kinds requiring the exposure of nothing else than wood might be constructed of all required strength by using wooden pins or treenails for fastening the interior lining planking to the wooden tongues.

In Figs. I and III of Sheet 2 a plan is shown of connecting adjacent corrugated beams together by screw-bolts O O O, and in certain cases this might be continued from beam to beam to great advantage.

Having thus fully set forth the character and nature of my invention, what I claim therein, and desire to secure by Letters Patent of the United States, is—

1. In armor for war-vessels and other defensive structures, the corrugated beams A A' A'' and the intermediate flat plate or plates, B, in combination with the steel plates C or steel-faced plates C and C', substantially as set forth.

2. The introduction of wooden beams or tongues into the corrugations of corrugated iron beams, in the manner set forth, and attaching thereto the planking I I I, or other sheathing material, substantially as described.

M. JANE MONTGOMERY.

Witnesses:

RICHARD MONTGOMERY,
E. A. SAWYER.