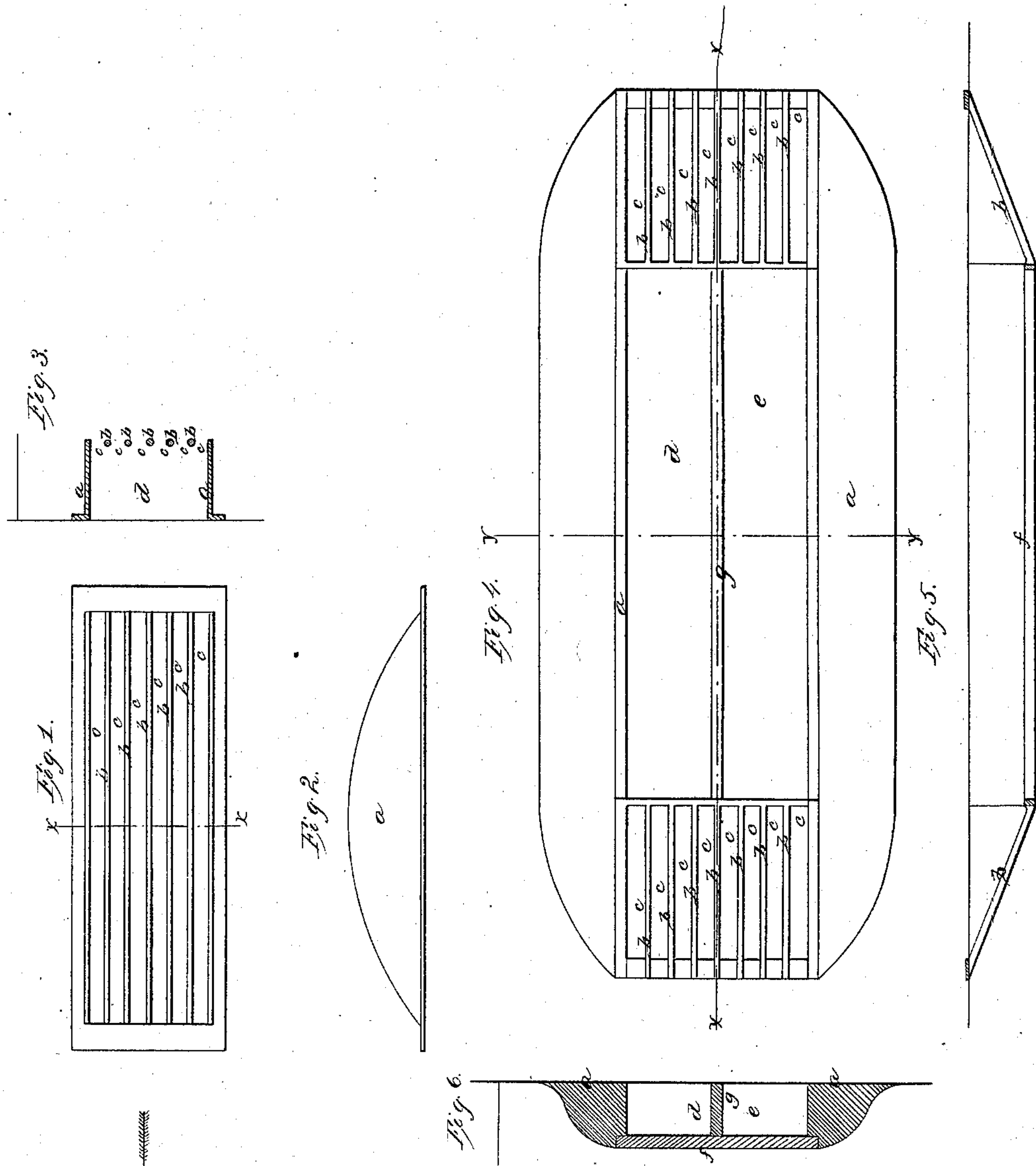


*F. B. Sterens,
Steam-Boiler Condenser.*

N^o 36,808.

Patented Oct. 28, 1862.



*Witnesses.
Albert C. Mason
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UNITED STATES PATENT OFFICE.

FRANCIS B. STEVENS, OF NEW YORK, N. Y.

IMPROVEMENT IN SHIELDS FOR SURFACE-CONDENSERS.

Specification forming part of Letters Patent No. 36,808, dated October 28, 1862.

To all whom it may concern:

Be it known that I, FRANCIS B. STEVENS, of the city, county, and State of New York, have invented a new Improvement in Surface Condensers or Coolers for Steamers; 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.

It has often been proposed to place a surface-condenser for condensing the steam, or a cooler for cooling the injection-water, outside of a steamer, so that the surfaces to be cooled may be surrounded by the water in which the steamer floats.

The object of my invention is to improve this method of placing a surface condenser or cooler, and this I do by placing a guard around the condenser or cooler, so that they may not be injured by striking against any object.

I completely inclose the condenser or cooler in this guard, which I make as strong or nearly as strong as the sides of the steamer to which it is attached, leaving open spaces for the ingress and egress of the water in which the steamer floats to the condenser or cooler.

Figure I represents a longitudinal elevation of my guard. Fig. II represents a horizontal view of the same. Fig. III represents a cross-section of the same, taken through the dotted line *xx* of Fig. I.

The guard is here shown formed by two strong side pieces, *a a*, attached to the sides of the steamer, these side pieces being curved, as shown in Fig. II. *b b b* represent strong bars bent to the same curve as the sides *a a*, with the interstices *c c c* for the ingress and egress of the water to the condenser or cooler. *d*

shows the space occupied by the condenser or cooler. The arrow shows the direction of the water as it passes the condenser or cooler.

Fig. IV represents a longitudinal elevation of another application of my guard, with the cover of the same removed. Fig. V is a horizontal section of the same taken through the dotted line *xx* of Fig. IV. Fig. VI is a cross-section of the same taken through the dotted line *yy* of Fig. IV.

a a show the side pieces, here shown curved vertically as well as horizontally to deflect the waves or any object that may strike the guard. *b b b* show strong bars with the interstices *c c c* for the ingress and egress of the water. *d* and *e* show the space occupied by the condenser or cooler. *f* shows the cover of the guard, attached thereto by bolts, so that it can readily be removed.

If the condenser or cooler is so large that the cover would be apt to be sprung or broken by striking any object, I propose to divide the condenser or cooler into sections, as *d* and *e*, divided by the bar *g*. Two sections only are here shown; but, if necessary, the condenser or cooler could be divided into more sections.

The guard should not be in immediate contact with the condenser or cooler, but a small space should be left between them.

What I claim as my invention is—

A guard inclosing a surface condenser or cooler placed on the outside submerged surface of a vessel, substantially as described.

New York, September 20, 1862.

FRANCIS B. STEVENS.

Witnesses:

ALBERT S. EASUM,
A. L. TELFER.