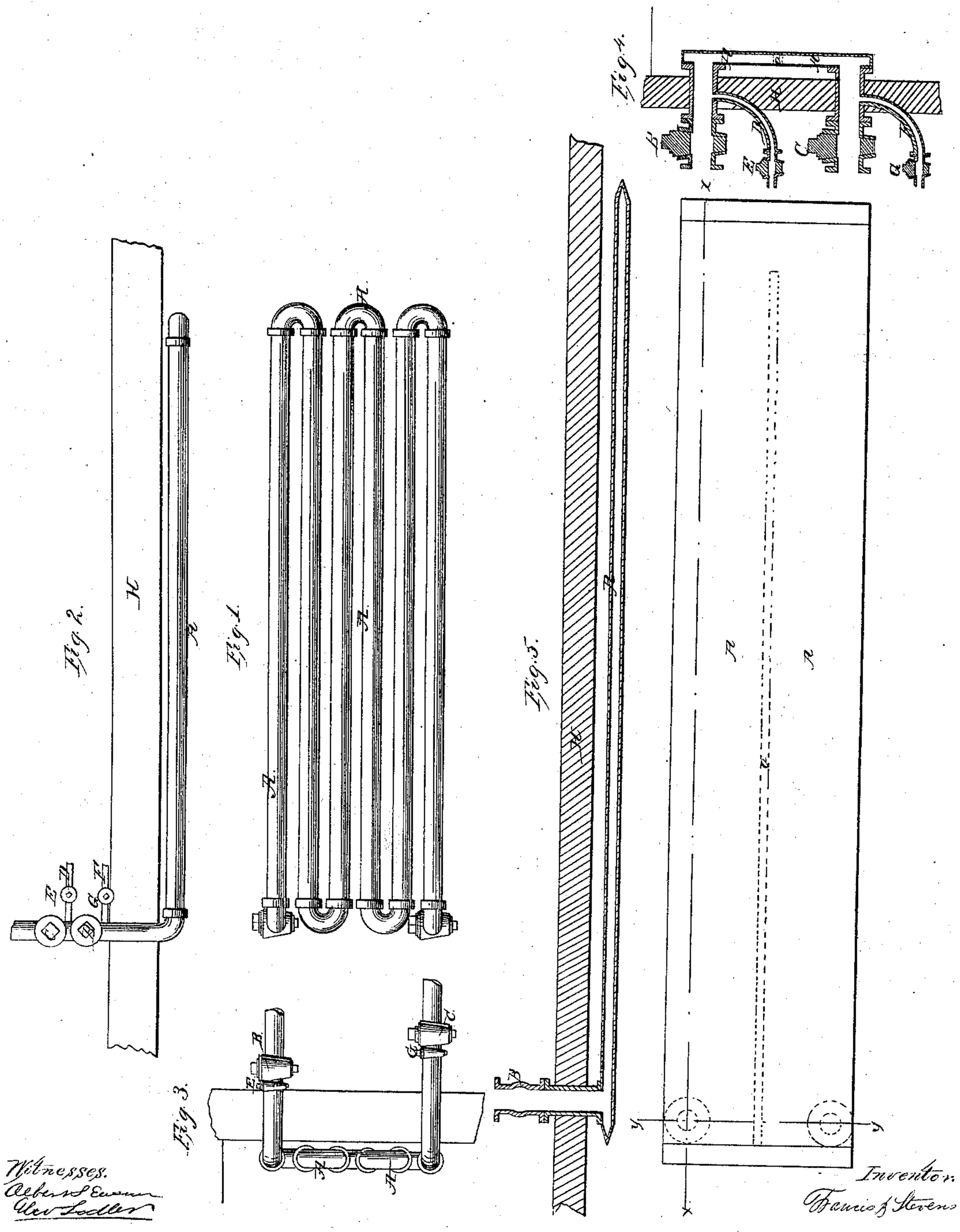
F. B. Stevens,

Steam-Boiler Condenser.

No. 36,807. Patented Oct. 28, 1862.



UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN SURFACE-CONDENSERS.

Specification forming part of Letters Patent No. **36,807**, 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.

My improvement consists in so arranging a surface-condenser that condenses the steam of a steamer or a cooler that cools the injection-water that they may be disconnected from the engine and used for the purpose of distilling fresh water from the sea-water, and also that they may be readily cleaned. To effect this I place a cock or valve at the port of entrance of the condenser or cooler, and another cock at the port of exit, and by these two cocks I shut off all communication with the engine. Between the cock closing the port of entrance and the condenser or cooler, I place a pipe leading to the boiler, and on this pipe I place a cock to open or close the communication. Between the cock closing the port of exit and cooler or condenser I place a pipe, with a cock attached, communicating with the atmosphere, so that when the cocks closing the port of exit and entrance are closed steam may be led to the condenser or cooler, and after being condensed drawn off.

I cleanse the condenser or cooler by first allowing it to fill with condensed water, and then by blowing out this condensed water into the atmosphere by the steam leading from the boiler.

Figure I represents a longitudinal elevation of a surface-condenser or cooler formed by a system of tubes placed on the submerged surface of a steamer with my improvement attached. Fig. II represents a horizontal view of the same. Fig. III represents an end view of the same. A A are the tubes forming the surface-condenser or cooler. B is the cock closing the port of entrance. C is the cock closing the port of exit. D is the pipe leading from the boiler to the condenser or cooler. E is the cock attached to this pipe. F is the pipe leading from the condenser or cooler to the atmosphere. G is the cock attached to this pipe. H is a section of the side of the vessel.

Fig. IV represents a longitudinal elevation of an application of my invention to a surface-condenser or cooler formed by a narrow plate attached to the submerged surface of a steamer. Fig. V represents a horizontal section of the the same, taken through the dotted line *x x* of Fig. IV. Fig. VI represents a cross-section of the same, taken through the dotted lines *y y* of Fig. IV. A shows the condenser or cooler formed by a narrow passage divided in its center by the longitudinal bar *a*, the passage above the bar *a* communicating with the port of entrance, and leading through an opening made in the bar to the passage below the bar, and to the port of exit. The other letters of reference are the same as in Figs. I, II, and III.

The operation of both these applications of my invention is as follows: The cocks B, C, and G being closed, and the cock E being opened, the steam from the boiler is condensed, and can be drawn off for use by opening the cock G. If the cocks E and G are both opened, the steam and water will be blown with great rapidity through the condenser or cooler, and will cleanse it of the grease formed therein. The engine at the time of distilling or of cleansing the condenser or cooler, if desirable, can be kept in motion by condensing the steam used by a condenser or cooler placed on the other side of the vessel; or, if the coolers or condensers on both sides of the vessel are used for distilling, then the engine can be kept in motion by injection-water drawn from the outside of the vessel.

What I claim as my invention is—

Closing the ports of exit and entrance of a condenser or cooler of a steam-engine and attaching pipes leading to the boiler and to the atmosphere, substantially as described.

New York, September 20, 1862.

FRANCIS B. STEVENS.

Witnesses:

ALBERT S. EASUM,
A. L. TELFER.