2 Sheets—Sheet 1.

F. B. STEVENS.

BOILER-COVERING.

No. 169,492. Patented Nov. 2, 1875.

Fig. 1.

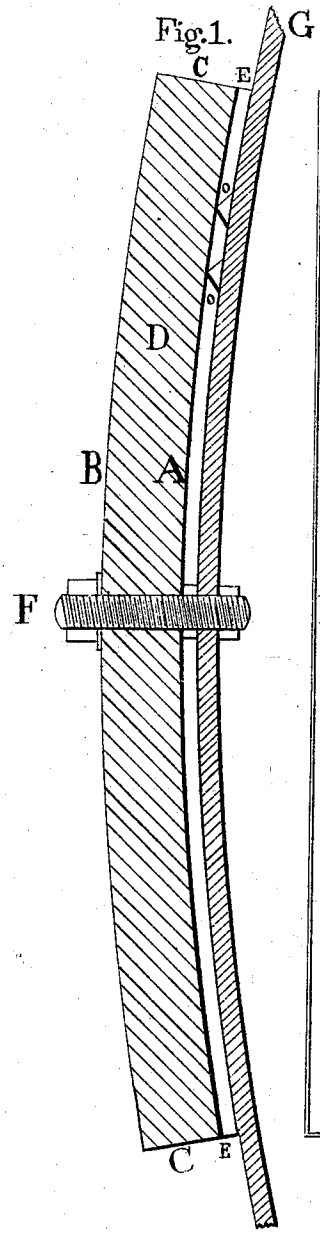
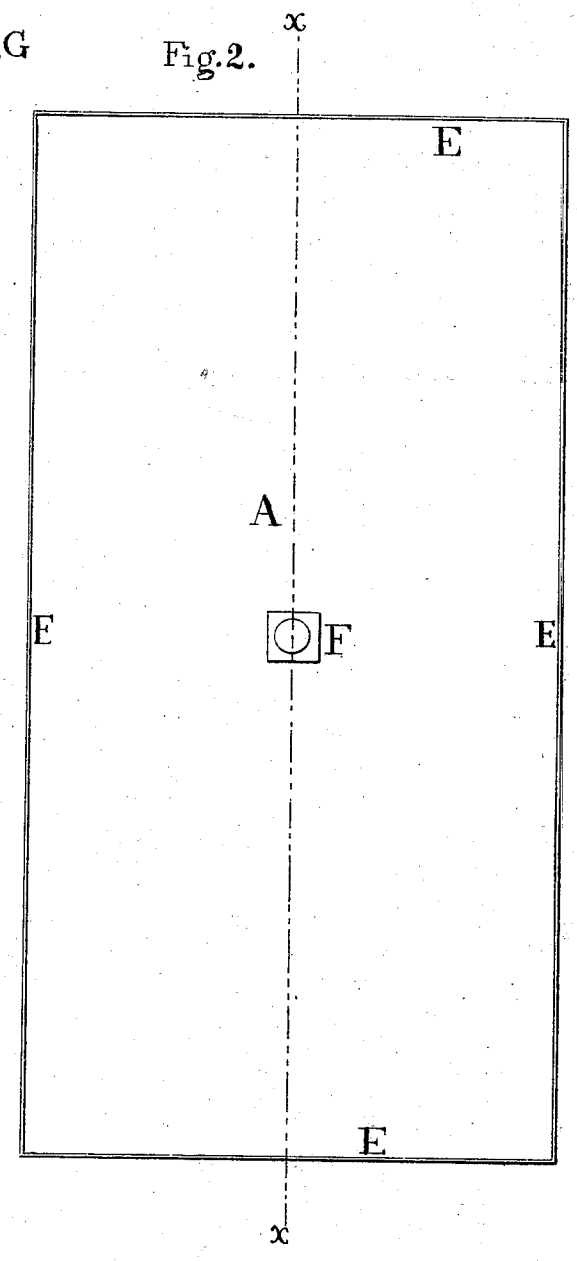


Fig. 2.



WITNESSES

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2 Sheets—Sheet 2.

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BOILER-COVERING.

No. 169,492. Patented Nov. 2, 1875.

Fig 3

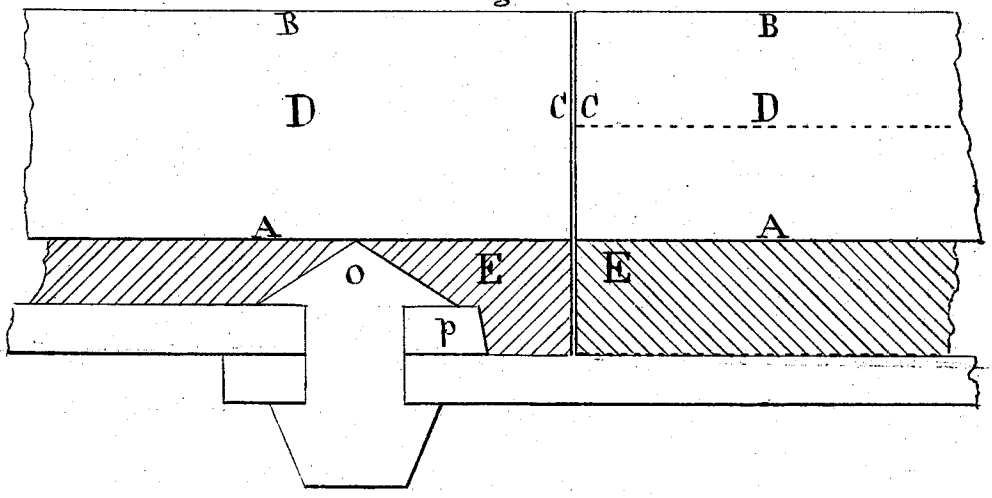
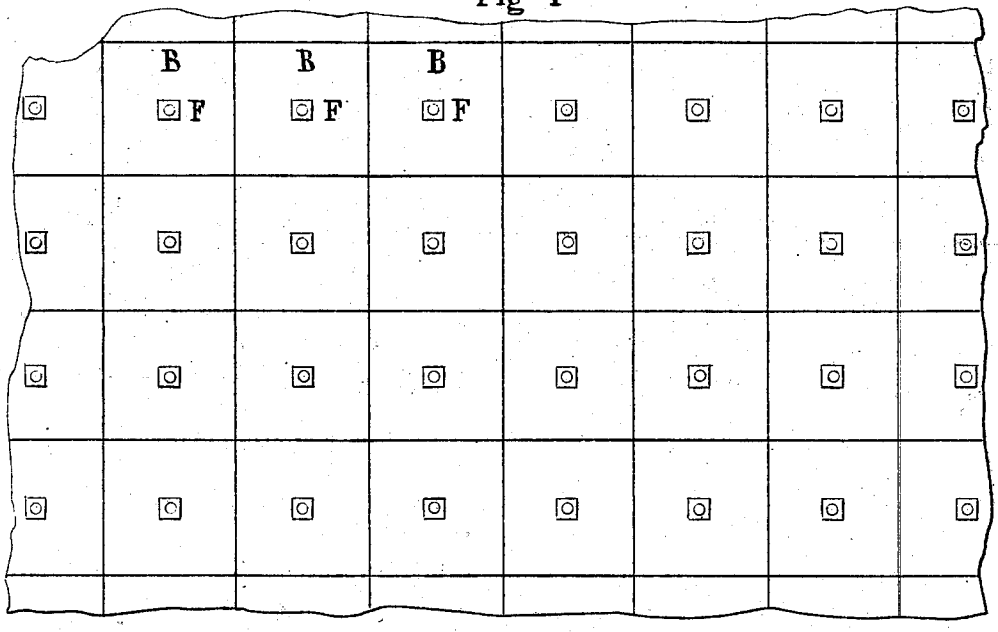


Fig 4



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UNITED STATES PATENT OFFICE.

FRANCIS B. STEVENS, OF HOBOKEN, NEW JERSEY.

IMPROVEMENT IN BOILER-COVERINGS.

Specification forming part of Letters Patent No. **169,492**, dated November 2, 1875; application filed August 9, 1875.

To all whom it may concern:

Be it known that I, FRANCIS B. STEVENS, of Hoboken, Hudson county, New Jersey, have invented an Improvement in Covering Boilers and Heated Surfaces, of which the following is a specification:

My invention consists in covering boilers and other heated surfaces with a number of hollow metallic sections, each hollow section being formed of a sheet of metal next to the boiler, an outer sheet, and side sheets joining the inner and outer sheets, and forming the sides or edges of the hollow metallic section. The cavity in these sections can be filled with any non-conducting substance, or it can be left unfilled, so that the confined stratum of air may alone act as the non-conducting material. I attach these hollow sections to the boiler or surface to be covered by standing-bolts secured to the boiler; or, in circular boilers, I can attach them by bands encircling the boiler, and placed over the junction of contiguous sections, in the manner that the sheet-iron covering is secured to locomotive and other boilers by bands.

My invention also consists in making projecting pieces or flanges of sheet metal around the sides of the inner surface of the hollow sections, so that these sections may only touch the boiler at the edges of these sheet-metal projections. By this means less heat will be communicated from the boiler to the hollow sections, for a stratum of air will intervene, and the edges of the sheet-metal projections that form the only points of contact can convey but little heat from the boiler to hollow sections. By this means, also, the projecting pieces can be readily fitted over the laps and rivet-heads of the boiler, in the same way that wooden circles or segments are cut and fitted around circular boilers covered with sheet-iron, and the hollow sections may be made to present an even surface on the outside.

Figure 1 is a horizontal view of a hollow section on a scale of four inches to the foot. Fig. 2 is a cross-section taken through the dotted line *x x* of Fig. 1.

A is the piece of sheet metal that forms the inner surface of the hollow section. B is the sheet metal that forms the outer surface of the hollow section. C is the sheet metal that forms the edges of the hollow sections. The sheets A and B are shown one inch and three-quarters apart, thus leaving the cavity D of that width. E E E E are the projecting edges of sheet metal around the sides or edges of the hollow sections. F is a standing-bolt, by which the hollow section can be screwed to the boiler and held there securely. *o o* are rivet-heads between the inner surface of the hollow section and the surface of the boiler.

Fig. 3 is a portion of a section of a boiler, showing parts of two hollow metallic sections and their junction near a lap of two sheets of the boiler. The etched surface E of Fig. 3 shows the pieces of sheet-metal projecting beyond the inner sheet A of the hollow sections, and fitted over the rivet-head *o* and lap *p* of the boiler. Without the projecting piece E the hollow section shown at the right hand of Fig. 3 would rest on the boiler, as shown by the dotted lines, while the section to the left hand would rest on the rivet-head.

Fig. 4 is a portion of a flat surface of a boiler covered with a number of hollow sec-sections, B B B, showing the outer sheets of each of these sections, and F F F showing screw-bolts, one in the center of each section, to fasten it to the boiler.

The sheet metal can be put together to form the hollow sections by rivets or any of the methods commonly employed to fasten together sheets of metal.

I am aware of the application of tiles (of porcelain or other material) to heated surfaces; and I do not claim the application of tin plates or other thin sheet metal as an inner lining-surface for the non-conducting or porous covering of boilers or steam-pipes; and I do not claim covering a steam boiler, pipe, or other heater with any non-conducting material when the latter is supported by a framework removed from and surrounding the former, not being in direct contact, but having an intervening air-space.

I claim as my invention in boiler-covering—

1. The hollow sections of metal formed by the inner sheet of metal A, the outer sheet of metal B, and the side sheets of metal C C.

2. The hollow sections of metal formed by the inner sheet of metal A, the outer sheet of metal B, and the side sheets of metal C C, in combination with the inner projecting flanges E E, as and for the purpose specified.

FRANCIS B. STEVENS.

Witnesses:
L. W. BROWN,
R. COFFIN.