

UNITED STATES PATENT OFFICE.

STEPHEN J. GOLD, OF CORNWALL, CONNECTICUT.

IMPROVEMENT IN SECTIONAL STEAM-BOILERS.

Specification forming part of Letters Patent No. 51,448, dated December 12, 1865.

To all whom it may concern:

Be it known that I, STEPHEN J. GOLD, of Cornwall, in the county of Litchfield and State of Connecticut, have invented a new and useful Improvement in Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, forming part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a perspective view of the boiler. Fig. 2 is a front elevation of a portion of the back section, showing the connection of flue with the fire-chamber. Fig. 3 is a section on line $x x$ perpendicular to face of boiler-section. Fig. 4 is a sectional view of the concave flange.

Similar letters of reference in the several figures denote the same part.

This invention has reference to an improvement in the construction of sectional steam-boilers, and is designed to furnish a simple, effectual, and economical method of forming continuous flues through this character of boiler across the sections, and by the connection of the sections forming hot-air chambers between them.

The nature of the invention consists in constructing the separate and distinct sections each with the requisite number of flues running through it, and in forming along the edge or other suitable portion of the section and around each of the flues concave flanges, which, when placed in juxtaposition, will form cavities for the insertion of plaster-of-paris, putty, or other suitable substance, which, being retained and hardening therein, effectually closes the joint and acts, as will be hereinafter described, to accomplish the desired purpose.

In the drawings, A A represent the sections which make up the boiler. Each is cast separate, and is complete in itself so far as water, steam, and fire spaces are concerned. The water-spaces of the sections are united by the tubes $a a$, screwed into consecutive sections, and the steam-spaces are connected by the pipe B, attached to the respective branch pipes b of the several sections, the connection of these several parts being effected by means of the rust-joint. Other methods of connecting the sections may, however, be employed, as the feature here considered is not depend-

ent on any particular mode of connecting the sections.

Through each of the sections are the direct and return flues $f f'$, the products of combustion passing to the latter by means of the opening c in the back section. This opening is formed by reducing the section to half its thickness between the lines $d d$, Fig. 2, which thus leaves channels from the fire-chamber D to the flues $f' f'$. The current then passes to the front by these flues, and then, turning into the flues $f f$, passes to the back of the boiler and off by the smoke-flue.

Along the edges of the sections and around the flues are cast flanges m , projecting from one-half to three-quarters of an inch, more or less, and formed with a concavity, e , Fig. 4, in their outer edge, the corners of the edge being likewise rounded off.

When the sections are united to form a boiler the flanges of two consecutive sections come against each other, and leave a space, i , for the reception of plaster-of-paris, putty, or any other suitable substance, which, on hardening, forms a portion of the side of the air chamber or flue. The form of this cavity is such that the substance inserted is effectually supported, so that it cannot fall out under any circumstance, and as the flange is against a water-surface there is no liability of this substance to burn out.

There is thus formed continuous flues through the series of sections, which are as free from leakage as though they were formed of a single piece. Between the sections there are formed chambers from one inch to an inch and a half wide, the flanges and the substance held by them constituting their edges.

Having described my invention and the operation thereof, I disclaim of itself the sectional construction of steam-boilers; but

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

1. The construction of boiler-sections with partial flues, substantially as set forth.
2. Constructing the ends of said partial flues with concave flanges or projections, substantially as and for the purpose set forth.

STEPHEN J. GOLD,

Witnesses:

R. C. ELLIOTT,
GEO. PATTEN.

S. J. Gold,
 Sectional Steam Boiler.
 Patented Dec. 18, 1865.
 No 51,448.

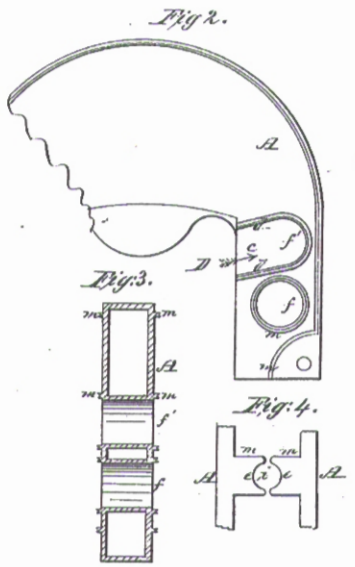
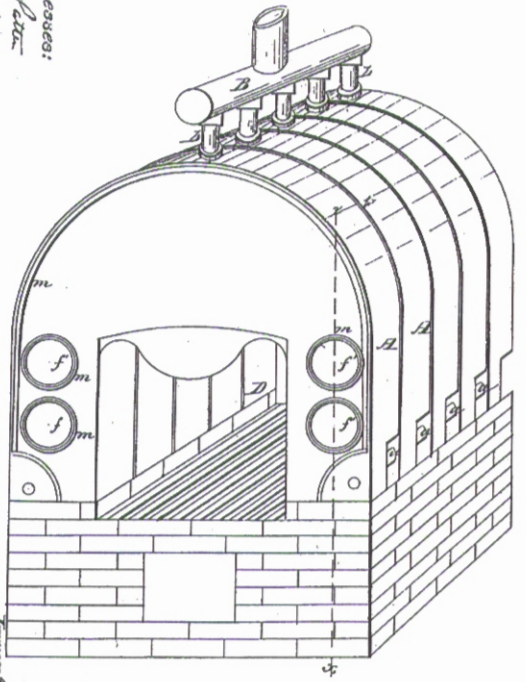


Fig. 1.



Witnesses:
 S. J. Gold
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Inventor:
 S. J. Gold