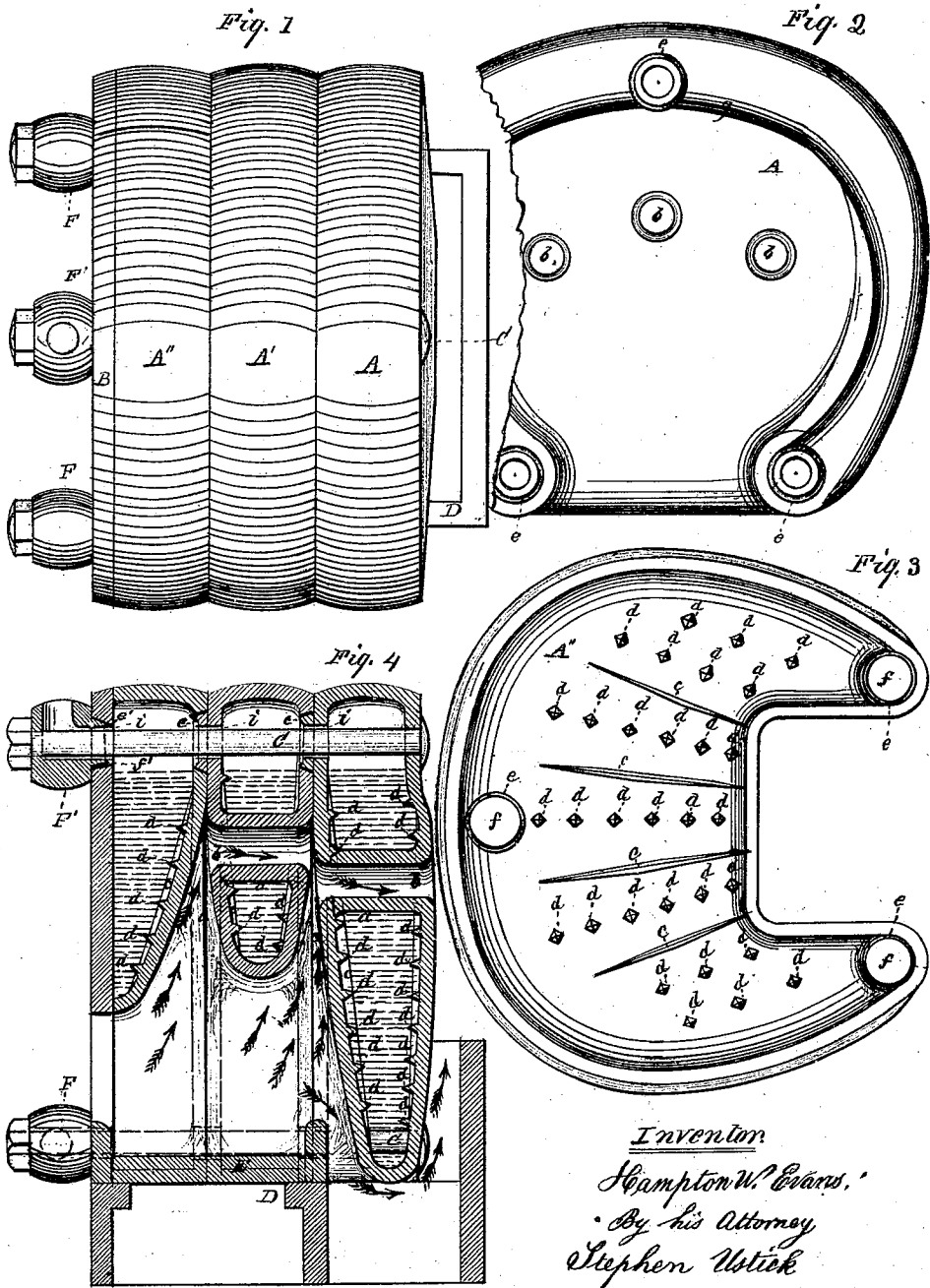


H. W. Evans,

Sectional Boiler.

No. 102,522.

Patented May 3, 1870.



Witnesses:
Alexander Farham
J. S. Chahoon

Inventor
Hampton W. Evans,
By his Attorney
Stephen Ustick

United States Patent Office.

HAMPTON W. EVANS, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 102,522, dated May 3, 1870.

SECTIONAL STEAM-GENERATOR.

The Schedule referred to in these Letters Patent and making part of the same

I, HAMPTON W. EVANS, of the city of Philadelphia, in the State of Pennsylvania, have invented certain Improvements in Steam-Generators, of which the following is a specification.

The nature of my invention consists of a series of hollow disks, which are bolted together, and are vertically arranged, and have water and steam-communication with each other, the lower edges of all the sections, with the exception of the rear one, being curved, so as to come above and around the fire, and thinned so as to form spaces when the sections are together to within a few inches of the outer edges of the sections, for the passage of a considerable portion of the products of combustion which escape into the chimney, through flues which run through the sections, as hereinafter described. Thus the heat is caused to act upon the greater portion of the broad faces of the sections, and additional heating-surface is given to the interior of the generator by means of the flues above-mentioned.

The invention further consists of conical hollow bosses, which project from one side of the sections through the metal of the contiguous sections, the openings through the bosses being of sufficient size to form spaces around confining screw-bolts, for the passage of steam and water from one section to another.

The joints around said conical bosses and grooves near the outer edges of the sections are filled with cement before the sections are bolted together, to form tight joints.

To enable others skilled in the art to which my improvement appertains to apply the same to practice, I will now give a detailed description thereof.

In the accompanying drawings which make a part of this specification—

Figure 1 is a plan of the improved generator.

Figure 2 is a face view of the section A.

Figure 3 is an inside view of the section A', with the cap-plate B removed therefrom.

Figure 4 is a vertical section of the generator.

Like letters in all the figures indicate the same parts.

In the drawings I have represented three sections, A A' A'', the latter having a cap-plate, B. These are all fastened together to form the generator by means of the screw-bolts C C C, as seen in figs. 1 and 4. It will be readily seen, however, that any number of sections may be used in adaptation to the requisite capacity of the generator.

The said sections rest upon the fire-box D, as seen in fig. 4, all but the rear one, A, being curved out above the grate E, in the manner clearly seen in fig. 3, which is an interior face view of the section A'', the cap B being removed.

The sections are thinner at their lower edges, so as to form spaces *a* for the passage of products of combustion, whereby to act upon the large flat surfaces of the sections, there being flues *b* through the sections, as seen in figs. 2 and 4, which form draughts to the chimney and give additional heating-surface in the interior of the sections.

On the interior surfaces of the sections there are strengthening-ribs *c*, which may be few in number in generators of small size.

At the points through which the screw-bolts C C C pass for confining the sections A A' A'' together, there are hollow conical bosses *e* on one side of the sections, which project through the metal of the contiguous sections, for forming joint-connections, the openings *f* being somewhat larger than the bosses for the reception of cement.

Extending from one boss to another near the outer edges of the sections; and on one side thereof, there are grooves *g*, for the reception of cement.

The balls F F and F', against the cap-plate B, through which the said bolts C pass, have conical projections *e'*, similar to the bosses *e*, which project through the cap-plate in openings *f'*, in which cement is also placed. Then, when the nuts *h* are screwed down on the bolts C, all the joints between the sections are made perfectly tight.

The opening through the bosses *e* and ball projections *e'* are of such size as to form water and steam-passages around the bolts C.

The steam-passages are seen at *i i i*.

The openings in the balls F F and F' are continued to one side thereof, as seen in figs. 1 and 4, and the feed-pipe is connected with one of the balls F, the blow-off cock with the other, and the steam-pipe with the ball F'.

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

1. The combination of the sections A A' A'', constructed substantially as described, having heat-flues *b* through them and spaces *a* between them, and arranged in relation to the fire-box D and grate E, as hereinbefore described.

2. The conical bosses *e* on the sections A A', and the conical projections *e'* on the balls F F and F', in combination with the openings *f* and *f'*, substantially as described.

In testimony that the above is my invention, I have hereunto set my hand and affixed my seal this 24th day of September, 1869.

HAMPTON W. EVANS. [L. s.]

Witnesses:

STEPHEN USTICK,
JOHN WHITE.