S. B. GANON.

Crown-Sheet for Steam-Boiler.

No. 164,540. Patented June 15, 1875.

Fig. 2.

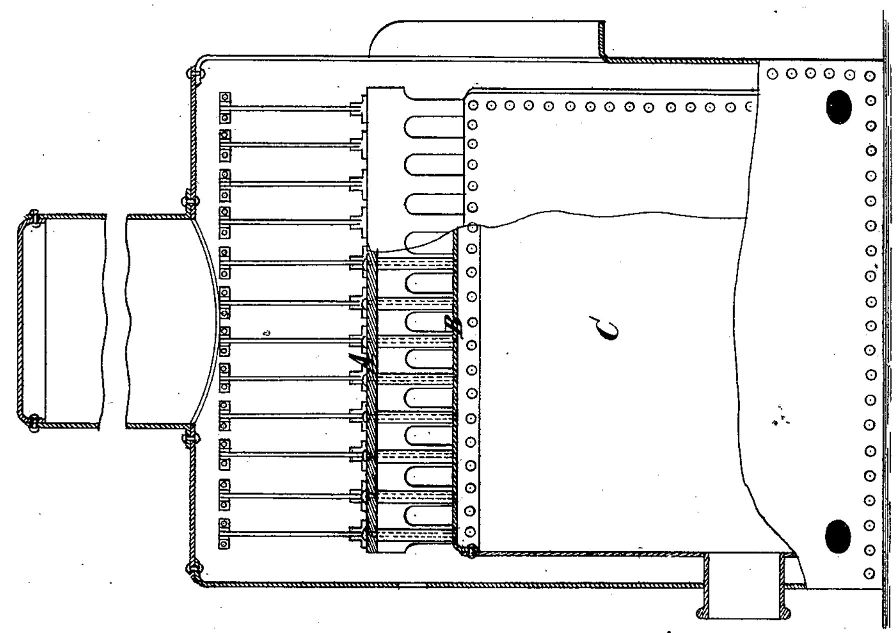
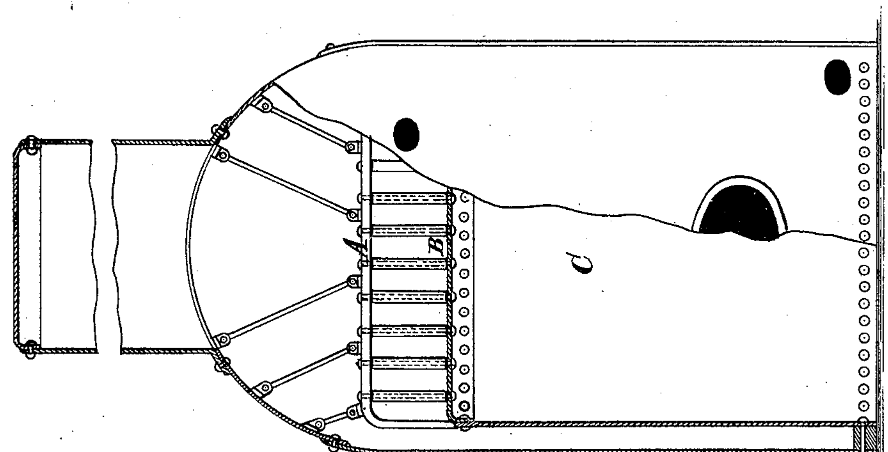


Fig. 1.



Witnesses:
A. Ruppert

S. B. Ganon
Inventor.
D. P. Holloway & Co
Attys

UNITED STATES PATENT OFFICE.

SOLOMON B. GANON, OF COLUMBUS, OHIO.

IMPROVEMENT IN CROWN-SHEETS FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. **164,540**, dated June 15, 1875; application filed December 4, 1874.

To all whom it may concern:

Be it known that I, SOLOMON B. GANON, of Columbus, in the county of Franklin and State of Ohio, have invented a certain Improvement in Locomotive-Boilers, of which the following is a specification:

The prime object of my invention is to provide means for preventing the disproportionately-rapid burning out of the crown-sheet of locomotive-boiler furnaces, which results from the deposition of sediment upon it, which, acting as a non-conductor between the water and the sheet, causes the overheating of the latter.

My improvement consists in the application of what I term a secondary crown-sheet, being simply a shield, of the size of the true crown-sheet, suspended or supported above the latter, for the purpose of catching the bulk of the sediment usually deposited on the crown-sheet. This shield is solid over its entire horizontal area, from which, besides preventing particles of mud or sediment passing through it to the crown-sheet, this particular advantage is derived, namely, it induces a rapid and continuous horizontal circulation of water over the crown-sheet, calculated to keep it more free from sediment than where vertical circulation can take place, as would be the case with openings through the horizontal area of the shield.

In the annexed drawings, Figure 1 is a sectional end elevation of the furnace end of a locomotive-boiler. Fig. 2 is a vertical longitudinal section thereof.

The same letters of reference are used in both figures in the designation of identical parts.

The secondary crown-sheet or shield A is placed a little distance above the true crown-sheet B of the furnace C of the boiler. I have shown it as provided with vertical sides, resting on and secured to the crown-sheet, and perforated at suitable intervals, so as not to impede free circulation, the shield being, however, solid over the entire extent of its horizontal area, so that the circulation must necessarily take place in horizontal line in the space between the true and the secondary crown-sheet. This involves a washing action on the crown-sheet proper, and aids materially in keeping it free from sediment. It may be supported either by stay-bolts rising from the crown-sheet, or by arms depending from the top of the boiler, or by both these means, as shown. Suitable hand-holes are located in the head of the boiler, opposite the space between the crown sheet and the shield, for the introduction of scrapers to cleanse the crown-sheet of what little sediment may still collect upon it.

An incidental, but nevertheless very important, advantage resulting from the use of this secondary crown sheet or shell is, that more steam can be generated in a boiler containing it, with a given amount of fuel, than in a boiler without it. The obvious reason for this is, that there is no impediment to the rapid radiation of the heat through the crown-sheet, whereas in boilers of the ordinary construction the deposit of sediment on the crown-sheet proper offers great resistance to such radiation.

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

The shield or secondary crown-sheet A, solid over the entire extent of its horizontal area, in combination with the crown-sheet B of a boiler-furnace, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SOLOMON B. GANON.

Witnesses:

W. WILLSHIRE RILEY,

R. SHIELD.