

C. H. FOX.
Steam-Boiler Furnaces.

No. 135,105.

Patented Jan. 21, 1873.

Fig. 1.

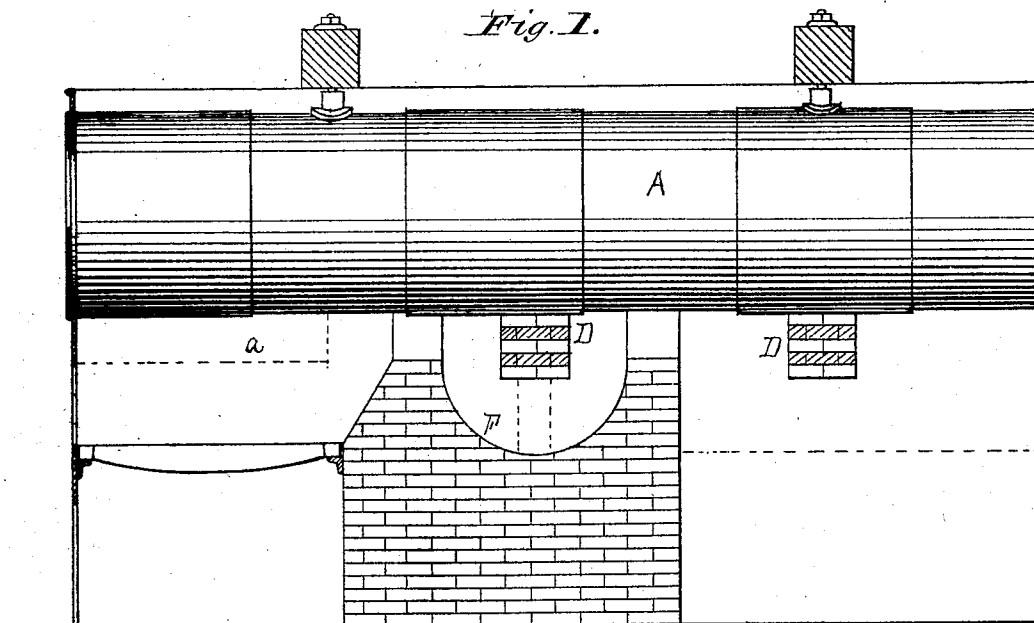
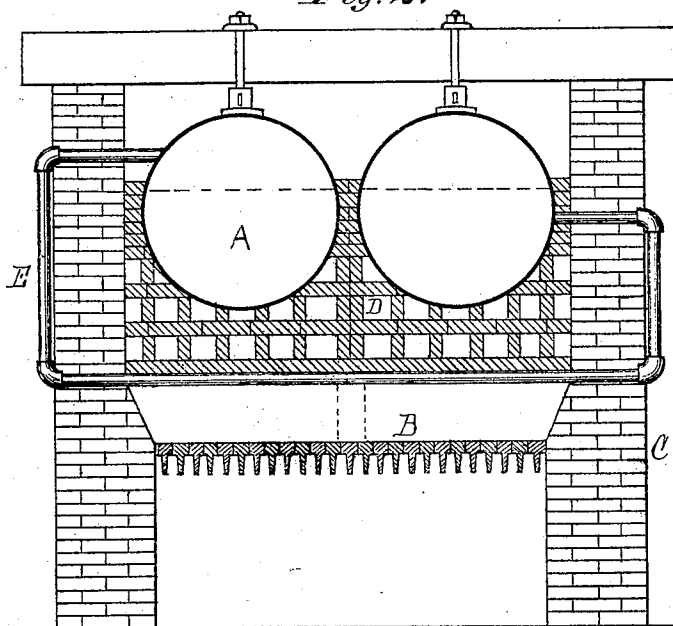


Fig. 2.



Witnesses:

Edwin James.
H. V. Gordon.

Inventor:

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UNITED STATES PATENT OFFICE.

CHARLES H. FOX, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN STEAM-BOILER FURNACES.

Specification forming part of Letters Patent No. 135,105, dated January 21, 1873.

To all whom it may concern:

Be it known that I, CHARLES H. FOX, of New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Steam-Boiler Furnaces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing and the letters of reference marked thereon making a part of this specification, in which—

Figure 1 is a longitudinal elevation of a boiler with my improvement attached. Fig. 2 is a vertical cross-section of the same.

This invention consists in providing boilers with a perforated deflector which may be suspended by pipes, as described in the patent No. 123,882, granted to me, or may be supported by pillars or abutments. The object of this invention is to prevent the retardation and cramping of the draft of long tubular boilers, and also to allow the gases, to some extent, to pass through the openings, and thereby impart to the bricks or tiles in these openings which have attained a high degree of temperature sufficient heat to ignite the gases and assist in their combustion at that point. Furthermore, the openings have the effect to break up the flame and smoke and scatter the gases, thereby giving them a better opportunity to mingle with the air from the furnace and produce a more powerful and rapid combustion, and of course generate steam more rapidly at a much less expenditure of fuel, being more economic and durable. These perforations may be either straight, curved, or angular.

The construction and operation of my invention are as follows:

A represents one or more ordinary tubular or flue boilers suspended or supported in the usual manner, and provided at its forward end with the grate-bars of the furnace B, and having side walls C. I have shown the boilers in Fig. 2 with my perforated deflector D supported by the water-pipe E, communicating at one side with the steam and at the other side with the water-space, thereby accelerating the circulation and heating of the water. If preferred, however, the deflector may be

supported by pillars or supports, as shown in dotted lines, as either of these two or any other convenient method may be adopted to support the deflector. This deflector is perforated or pigeon-holed, as it is commonly called, and as plainly seen in Fig. 2, so that the gases and products of combustion may pass through and still be enough retarded to convey or impart some of their heat to the fire-brick, of which the deflector is composed. By this means the draft is not entirely impeded, and yet enough is stopped to allow the heat of the products of combustion to ignite and consume the gases, and thus assist in the generation of steam, and of course less fuel is used, and no smoke or gases are allowed to escape. If preferred, a deflector, *a*, which can be also perforated, may be suspended or supported by pillars, as shown in dotted lines, under the front end of the boiler, and immediately over the grate-bars, so as to retain and impart its heat to the boiler, and yet it may be protected from direct contact with the flames, and of course be prevented from burning or becoming in any manner injured by direct contact with said flames. If desired, there may be two or more of these deflectors, according to the length of the boiler. Under the deflector D may be arranged a concave arch, F, of the usual construction, to allow the remaining products of combustion to pass freely.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The perforated, suspended, or supported deflector D, in combination with a boiler, A, substantially as and for the purpose herein set forth.

2. The combination of the perforated deflector D, boiler A, and concave arch F, arranged substantially as shown, and for the purposes herein set forth.

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

CHARLES H. FOX.

Witnesses:

BAILEY D. DAYTON,
HENRY W. HUNT.