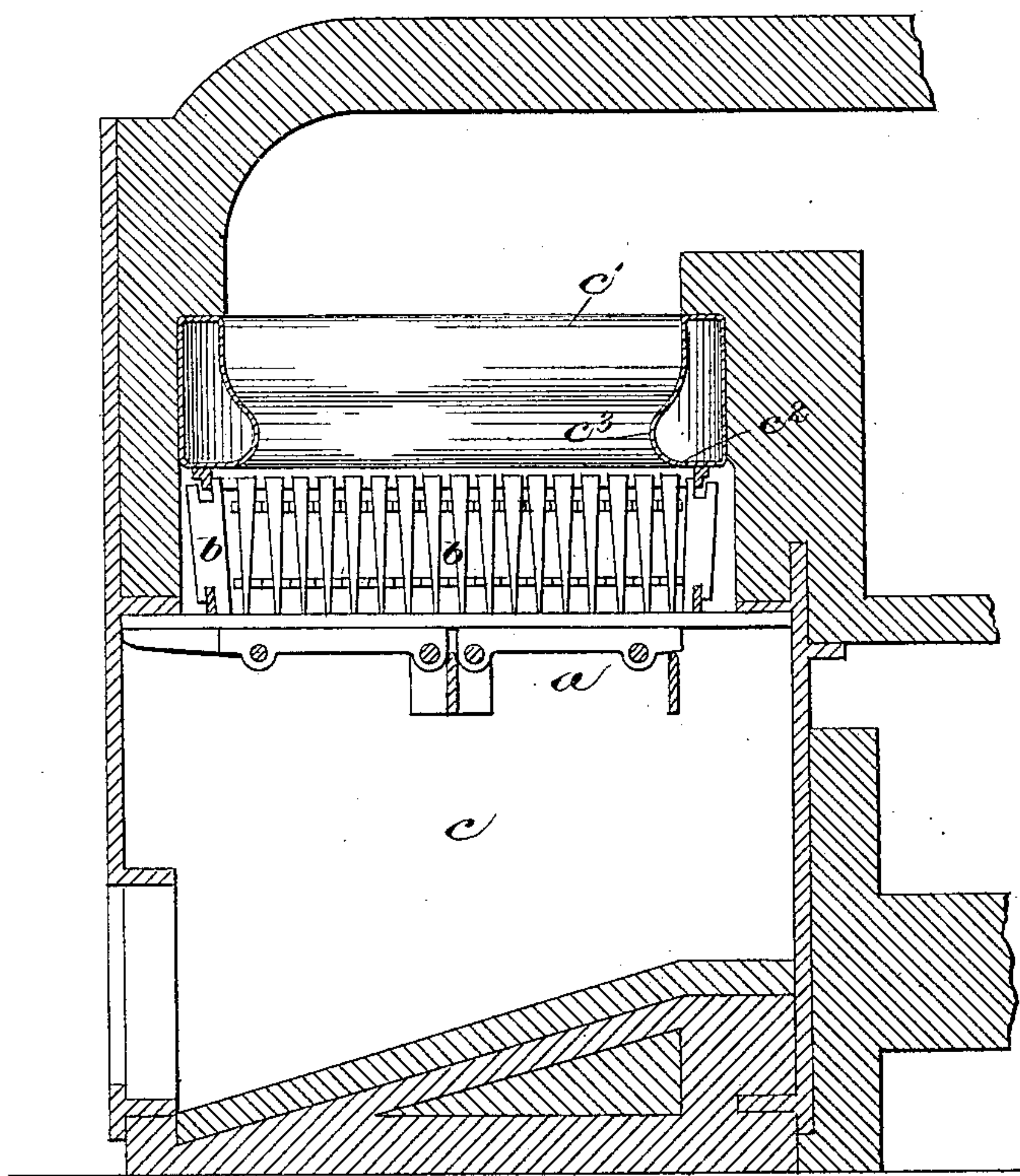


(No Model.)

S. G. LANE.
FURNACE.

No. 362,979.

Patented May 17, 1887.



Witnesses

Arthur Zippert.

John F. C. Primich.

Inventor

Samuel G. Lane.

By Crosby & Gregory atty.

UNITED STATES PATENT OFFICE.

SAMUEL G. LANE, OF BOSTON, MASSACHUSETTS.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 362,979, dated May 17, 1887.

Application filed August 17, 1886. Serial No. 211,139. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL G. LANE, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Furnaces, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention has for its object to improve the construction of the class of furnaces shown and described in United States Patents Nos. 253,191, 253,192, and 253,193, it relating more especially to the furnace shown and described in the Patent No. 253,192, wherein a water-back replaces the refractory lining shown in the other of said patents.

With a water-back such as shown in the Patent No. 253,192 it has been ascertained that the products of combustion are liable, under certain circumstances, to rise from the fuel close to the water-back, which is substantially vertical, leaving the combustion at the center of the fire-chamber less perfect than at or near the water-back. In my experiments I have discovered that this difficulty may be overcome by providing the water-back with a convex or irregular surface at its inner side, by which to deflect toward the center of the fire-chamber the air entering the furnace to support combustion. With a water-back shaped as herein shown the combustion is more uniform throughout the fire-chamber and the heat is greatly intensified.

The figure is a longitudinal section of a furnace provided with my improved water-back.

The general construction of the furnace, with its bottom *a*, upright gratings *b* at the sides thereof, and the ash-pit *c* below, is herein shown the same as in the Patent No. 253,192, referred to, wherein like letters designate like parts. Above the upright grating *b*, and supported in the masonry of the furnace, is a water-back, *c'*, which in practice will be pro-

vided with usual water inlet and outlet passages. (Not herein shown.)

In order that the air which passes through the upright grating *b* may be deflected in its course toward the center of the fire-chamber of the furnace, to thereby supply the products of combustion at the center of the said fire-chamber with a sufficient quantity of air to insure a more perfect and complete combustion, the water-back *c'* is made convex or of irregular shape at its inner side.

In the present instance of my invention, and as herein shown, the lower portion of the water-back, at its inside, is rounded, as at *c'*; but the said part might be of other or irregular form. By thus shaping the water-back to thereby direct the supply of air to the interior of the fire-chamber the combustion is more complete in the said fire-chamber and the heat produced is distributed substantially equal on all sides.

My improved water-back may be applied to any usual fire-chamber.

I claim—

1. In a furnace, the floor or bottom gratings and vertical gratings extended upward therefrom, combined with a water-back surrounding the fire-chamber above said gratings, and shaped, substantially as described, to deflect the air entering said fire-chamber toward its center, as and for the purpose set forth.

2. The combination, with the grating to sustain the fuel, of a water-back having its inner wall of curved or irregular shape to divert the supply of air into or toward the center of the fire-chamber, substantially as described.

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

SAMUEL G. LANE.

Witnesses:

BERNICE J. NOYES,
J. H. CHURCHILL.