

C. HILL.
Grates for Boiler-Furnaces.
No. 224,688. Patented Feb. 17, 1880.

Fig. 2.

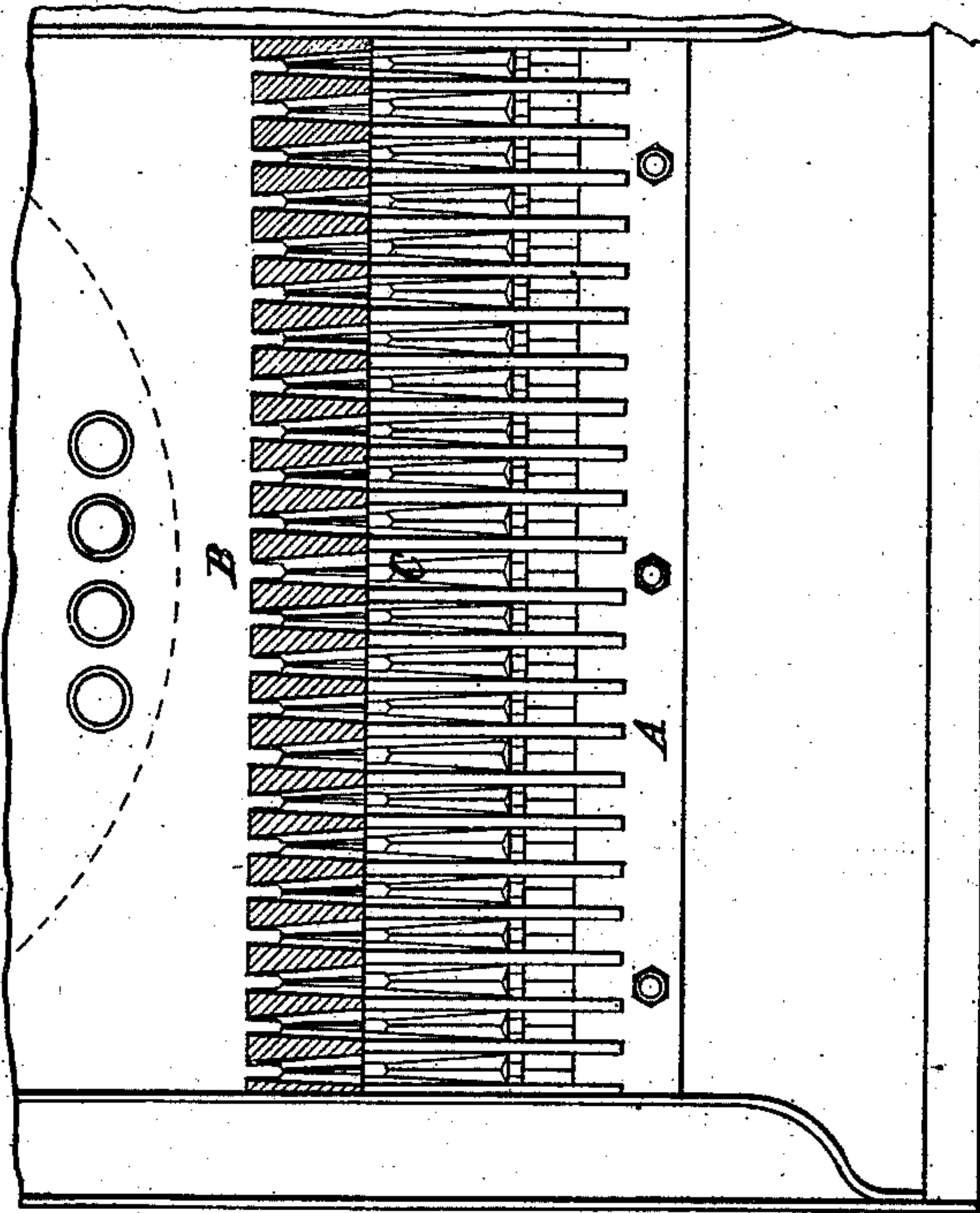
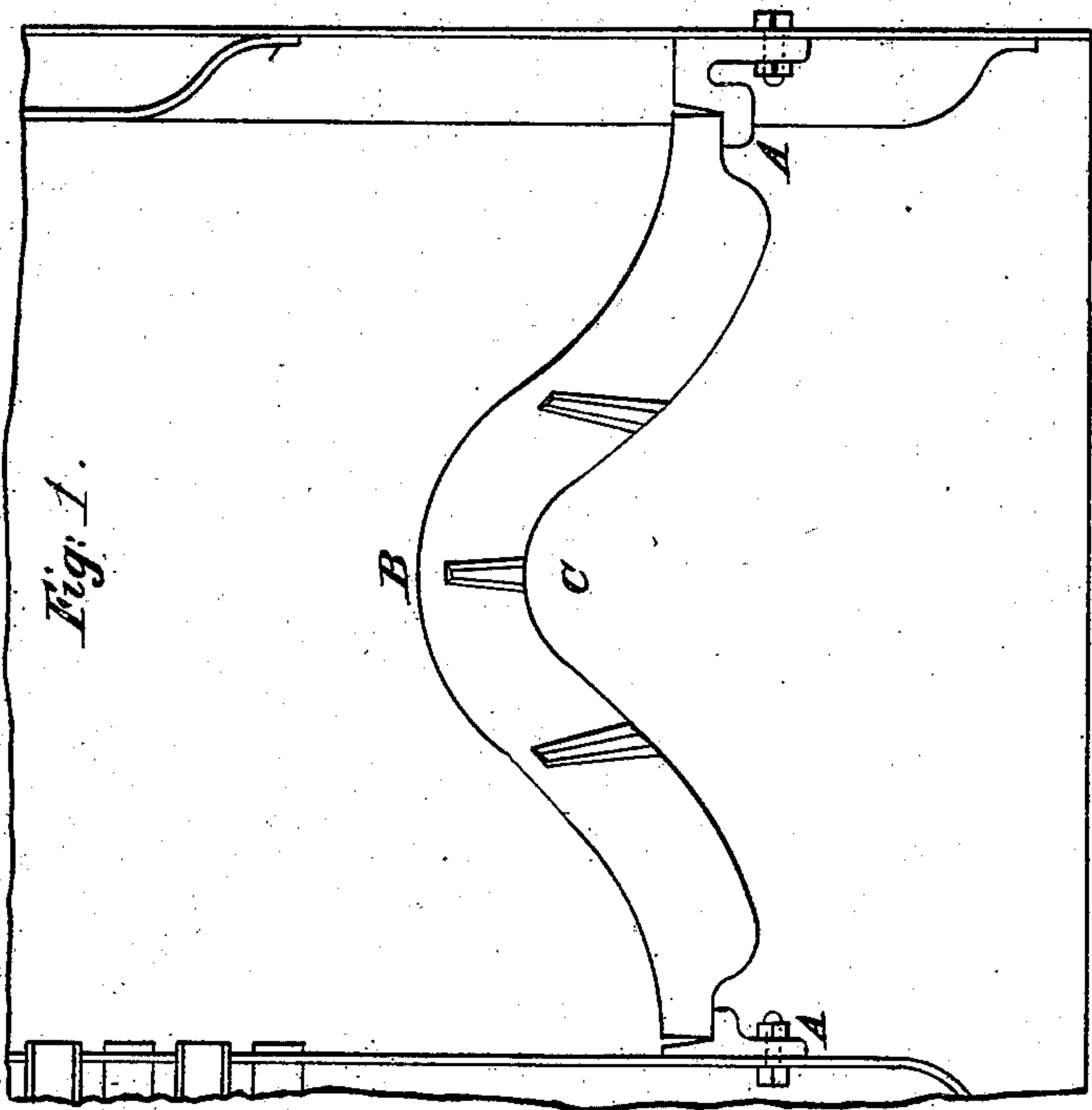


Fig. 1.



WITNESSES

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UNITED STATES PATENT OFFICE.

CHRISTOPHER HILL, OF POPLAR, ENGLAND.

GRATE FOR BOILER-FURNACES.

SPECIFICATION forming part of Letters Patent No. 224,688, dated February 17, 1880.

Application filed June 25, 1879. Patented in England, December 12, 1878, and February 18, 1879.

To all whom it may concern:

Be it known that I, CHRISTOPHER HILL, of Poplar, in the county of Middlesex, England, have invented new and useful Improvements in Grates for Boiler-Furnaces, of which the following is a specification.

This invention consists in improvements in the construction and arrangement of the fire-bars and bearing-bars of the grates of marine and other boilers, the fire-bars being so constructed that the centers thereof are higher than the ends, which rest upon detachable bearing-bars secured to a furnace-wall, thus leaving a space under the fire-bars and between their ends, into which the air passes and becomes heated before passing through the mass of fuel.

In the accompanying drawings, Figure 1 is a longitudinal section of a furnace, showing a fire-bar arched upward in the center; and Fig. 2 is a cross-section of a furnace, showing an arrangement of fire-bars of similar construction.

A are the bearing-bars; B, the arched fire-bars, and C the space on the under side of the grate.

The bearing-bars, instead of being placed parallel to the front of the furnace, can be fixed at right angles thereto on the sides of the fire-box, in which case the fire-bars are parallel to the front of the furnace.

On the fuel being ignited the air in passing through the space C, formed by the arched

construction or arrangement of the fire-bars, becomes thoroughly heated by the fuel resting on the lower fire-bars or on the ends of the fire-bars, and passes into and among the fuel at the center of the grate at a very high degree of temperature, thereby causing the almost entire consumption of the fuel and products of combustion. The thorough heating of the air before coming into contact with the main portion of the fuel allows of the utilization of coke, small coal, and fuel of inferior quality, and the escape of smoke and formation of clinkers are almost entirely avoided.

I do not broadly claim a grate in which the bars are curved upwardly toward their center, as such construction of itself is not new.

I claim as my invention—

The combination of a series of fire-bars each formed independent of each other and with spacing-lugs, each bar being in the form of an arch, as shown, each of the ends of which is formed of two contrasting curves, all the bars being of the same thickness and depth, whereby a uniformity is produced, and the ready removal of and replacement of either is provided for without disturbing the adjacent ones, as set forth.

C. HILL.

Witnesses:

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