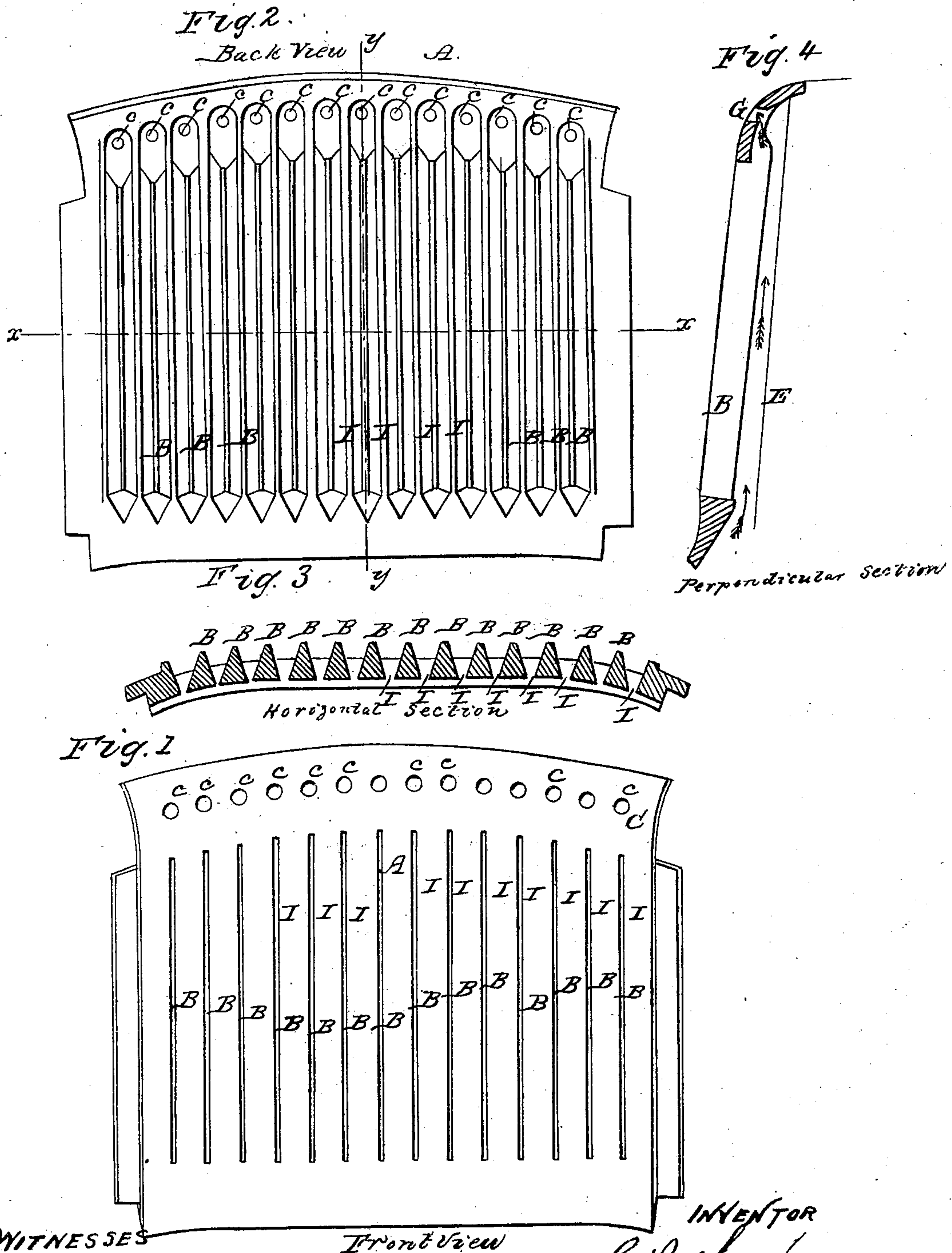


E. BOILEAU.  
Fire Plate for Stoves.

No. 92,253.

Patented July 6, 1869.



WITNESSES

Charles Mynar  
Joseph Diegward

Front View

INVENTOR

E. Boileau



# United States Patent Office.

ETIENNE BOILEAU, OF ST. LOUIS, MISSOURI.

Letters Patent No. 92,253, dated July 6, 1869.

## FIRE-PLATES FOR STOVES.

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

*To all whom it may concern:*

Be it known that I, ETIENNE BOILEAU, of the city and county of St. Louis, and State of Missouri, have invented certain new and useful Improvements in Fire-Plates for Stoves; and do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a front elevation of my improved fire-plate;

Figure 2 is a rear elevation of the same; and

Figures 3 and 4 are horizontal and vertical sections, respectively, on the lines *x x* and *y y* of fig. 1.

Letters of like name and kind refer to like parts in each of the figures.

In the use of cast-iron back-plates for the fire-boxes of stoves for burning coal, much difficulty has been experienced in insuring either stability or durability, as the intense heat, being applied to but one side only of said plate, would in a very short time warp it out of shape, and render it useless; or if still retained in the stove, said heat would "burn out," and destroy the plate, rendering it necessary that the same should be frequently renewed, at a considerable expense.

To obviate these objections, and furnish a sufficient supply of air to the fuel-chamber, above the fuel, to consume the gas, is the object of my invention; which consists in constructing said back-plates of a series of vertical triangular bars, joined together at their upper and lower ends, and so proportioned as that the base of said triangle, which is placed next to the fire, shall be equal to only one-third of the area of its sine, by which means the action of the cool air at the rear of said bars or plate, entirely counteracts that of the fire in front, and not only prevents warping of said plate, but also prevents overheating.

It further consists in the employment of the V-shaped grooves, between the bars upon the rear of said plate, for the passage of air to the upper edge thereof, from whence it escapes into the fuel-chamber through suitable openings, and assists in consuming the escaping products of combustion.

In the annexed drawing—

A represents the back or fire-plate, consisting principally of a series of bars, B B, &c., placed in a vertical position, and with their ends joined to and forming a part of the upper and lower portions of said plate.

Transversely, the bars are triangular, with the base thereof at the front, said base being in area but one-

third of the sine, so that of the total area of said bars, but one-fourth is exposed to the direct action of the fire, while the remaining three-fourths is in immediate contact with the cold air, which is allowed to circulate freely in rear of the back-plate.

The contiguous edges of the bars should be as close to each other as it is possible to cast them, say, one-sixteenth of an inch, as the only object of the vertical slot between the bars is to permit of their expansion and contraction laterally.

The back-plate is placed at a suitable distance in front of the front oven-plate D, so as to leave between said plates an air-space, E, opening at the bottom into the ash-pit, by means of which cold air is brought into contact with the rear of said back-plate, and effectually counteracts the effect of the heat upon its front.

In order that the air thus introduced in rear of the back-plate may be continually renewed, so as to be cool, and, at the same time, may assist in consuming the gas arising from the burning coal, the V-shaped grooves between the bars are extended upward, and are each connected with an annular opening, *c*, which passes through the plate to the front, near its upper edge.

The air entering the space E from beneath the grate, passes upward, and escapes through the openings *c c*, &c., into the fuel-chamber, where it meets the ascending current of heated gas at nearly a right angle, by which means said air and gas are so thoroughly united as to insure the perfect combustion of the latter, and, consequently, a large increase in the amount of heat obtained from a given quantity of fuel.

It is believed that this back-plate is almost if not entirely indestructible by use in an ordinary heating or cooking-stove, and that from its many advantages, its general use is certain.

Having thus fully set forth the nature and merits of my invention,

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

The within-described back or fire-plate A, consisting principally of the triangular bars B B, joined together at their upper and lower ends, and containing the annular openings *c c*, near the upper edge thereof, substantially as and for the purpose shown.

E. BOILEAU.

Witnesses:

CHARLES MESNIER,  
JOSEPH SIEGWART.