

(No Model.)

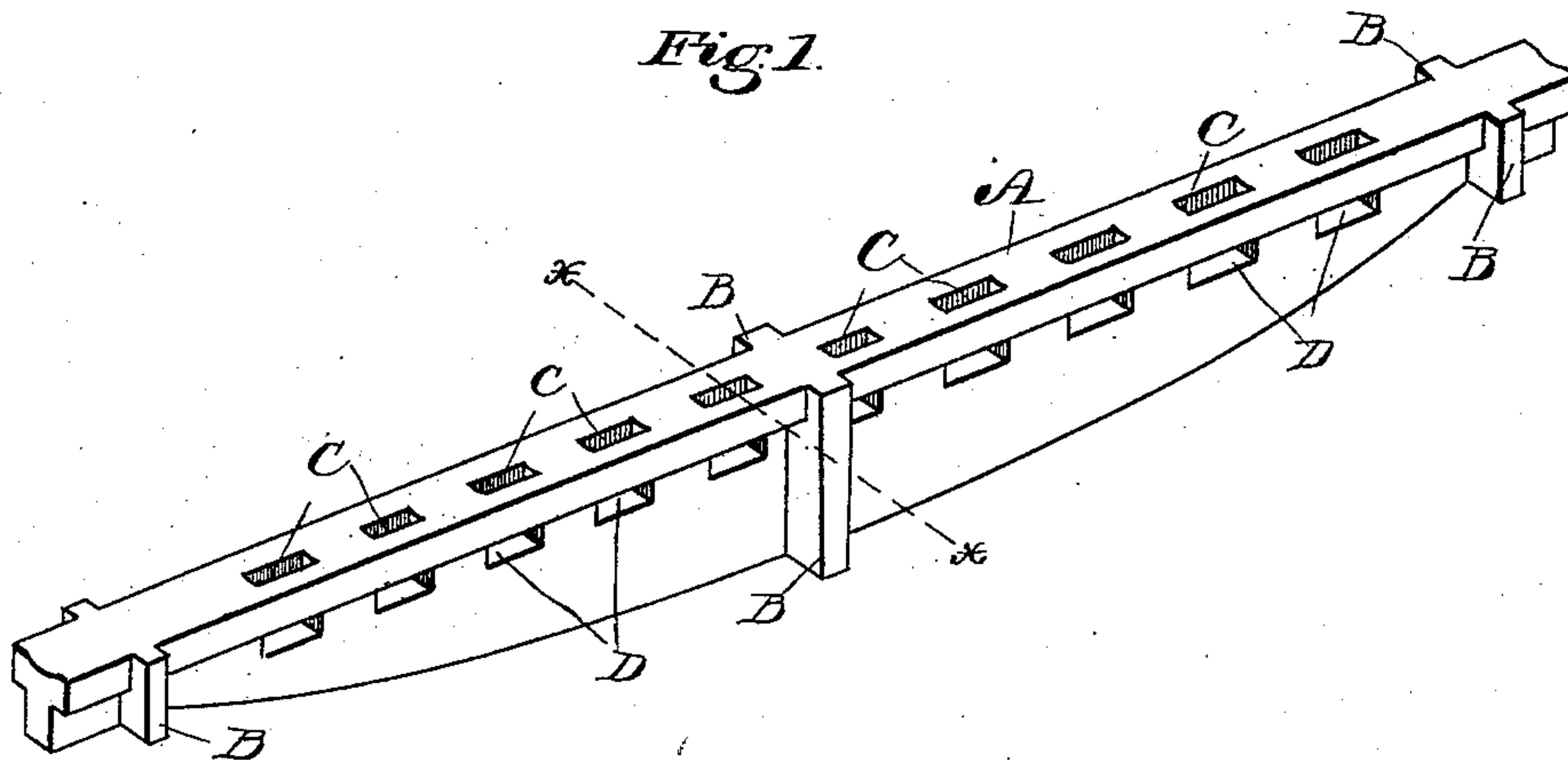
J. CHRISTIE.

GRATE BAR.

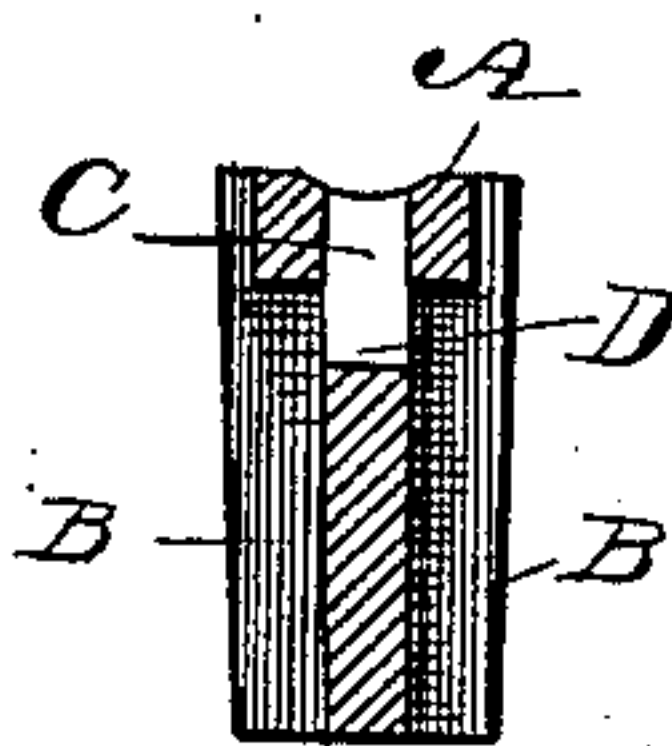
No. 361,397.

Patented Apr. 19, 1887.

*Fig. 1.*



*Fig. 2.*



Witnesses  
*S. J. Williamson*  
*E. F. Meeker*

Inventor  
*Jacob Christie*  
by *Smith and Hubbard*  
his attorneys

# UNITED STATES PATENT OFFICE.

JACOB CHRISTIE, OF LONG ISLAND CITY, ASSIGNOR TO SHERWOOD STERLING, OF BROOKLYN, NEW YORK.

## GRATE-BAR.

SPECIFICATION forming part of Letters Patent No. 361,397, dated April 19, 1887.

Application filed August 27, 1886. Serial No. 211,988. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB CHRISTIE, a citizen of the United States, residing at Long Island City, in the county of Queens and State of New York, have invented certain new and useful Improvements in Grate-Bars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in grate-bars for furnaces, and has for its object the production of a bar which shall possess the requisite size for the proper resistance to the heat, but which at the same time shall permit very free access of the draft from beneath to the fire; and with these ends in view my invention consists in the construction of the grate-bar, hereinafter fully set forth, and then recited in the claims, which form a part thereof.

In order that those skilled in the art to which my invention appertains may fully understand how to make and use my improvement, I will describe the same in detail, referring by letter to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective of a grate-bar made in accordance with my improvement, and Fig. 2 a transverse vertical section taken at the line X X of Fig. 1.

Similar letters denote like parts in both the figures of the drawings.

A represents the bar, which is adapted to be supported and secured, after the manner of ordinary bars, upon end bars or walls within the furnace, or, if desired, upon shaking or rocking bars, as shown, set forth, and claimed by me in a certain application bearing Serial No. 146,531, and allowed by the Patent Office the 12th day of May, 1886.

B are vertical side ribs to separate the bars properly from those contiguous thereto. They form no part of my present invention. The

top surface of the bar I prefer to make concave in cross section, as shown in the drawings.

C are holes extending downward through the face of the grate-bar.

D are transverse holes extending through the bar somewhat below the top thereof. The vertical holes C open into the transverse holes D, as is clearly shown by the cross-section, Fig. 2.

When arranged in series to form a grate and operating either as "dead" or as "shaking" bars, the air constituting the draft enters from beneath, and not only reaches the fire by the interstices between the bars, but also through the holes hereinbefore described, which extend from both sides of the bar and up through its center. That this is advantageous will be at once apparent, since it gives air directly to a greater area of fire than the mere spaces between the bars, and consequently aids complete combustion of fuel.

I am aware that notched edge bars—as, for instance, those known as the "paragon"—have heretofore been used, and I do not, therefore, desire to be understood as laying claim to that construction, but only to a bar, as herein set forth, having central draft openings or holes.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A grate-bar constructed with a longitudinal web at its under side and formed concave as to its upper surface transverse to the length thereof, and provided with the transverse holes D, extending through the bar, and the vertical holes C, extending downward from the concaved top surface and opening into the transverse holes, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB CHRISTIE.

Witnesses:

HENRY E. MILLER,  
G. E. CLAY.