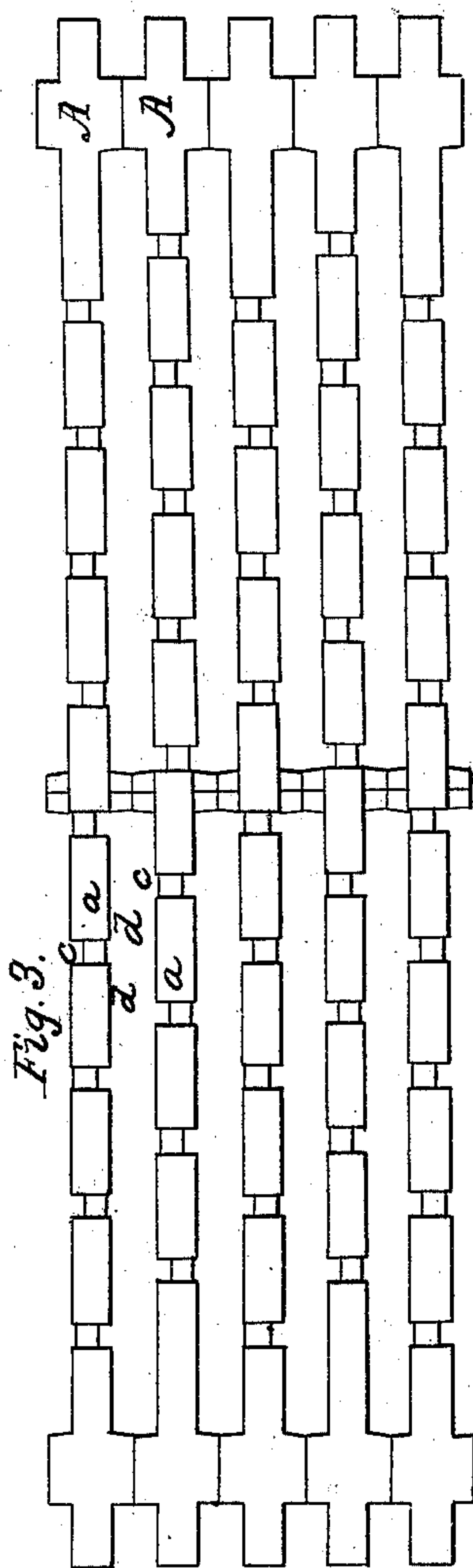
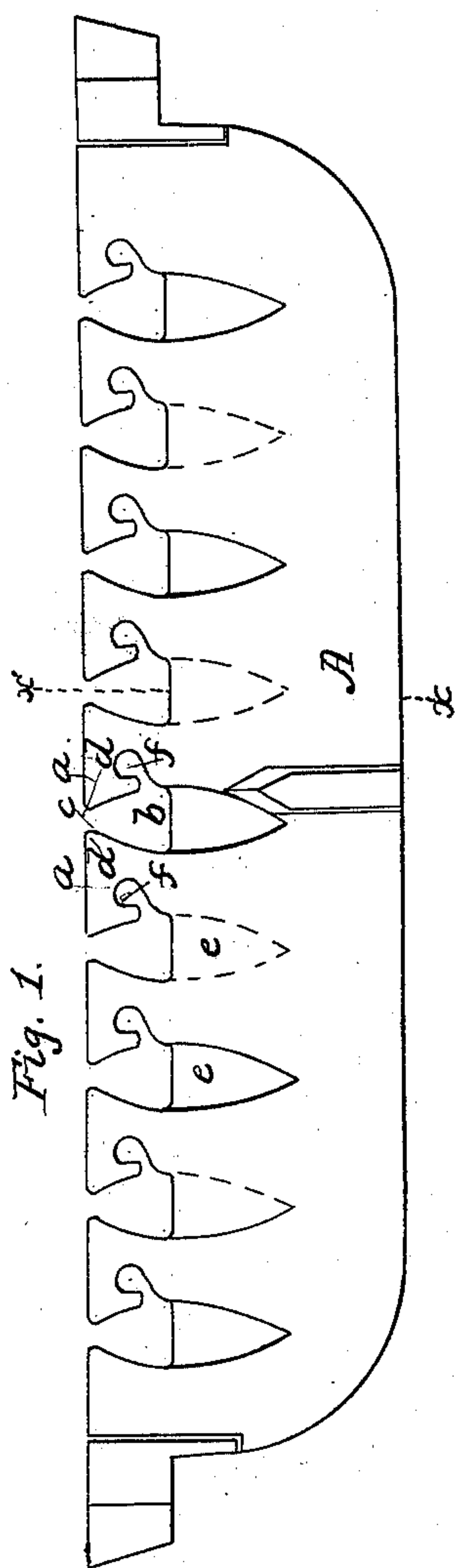
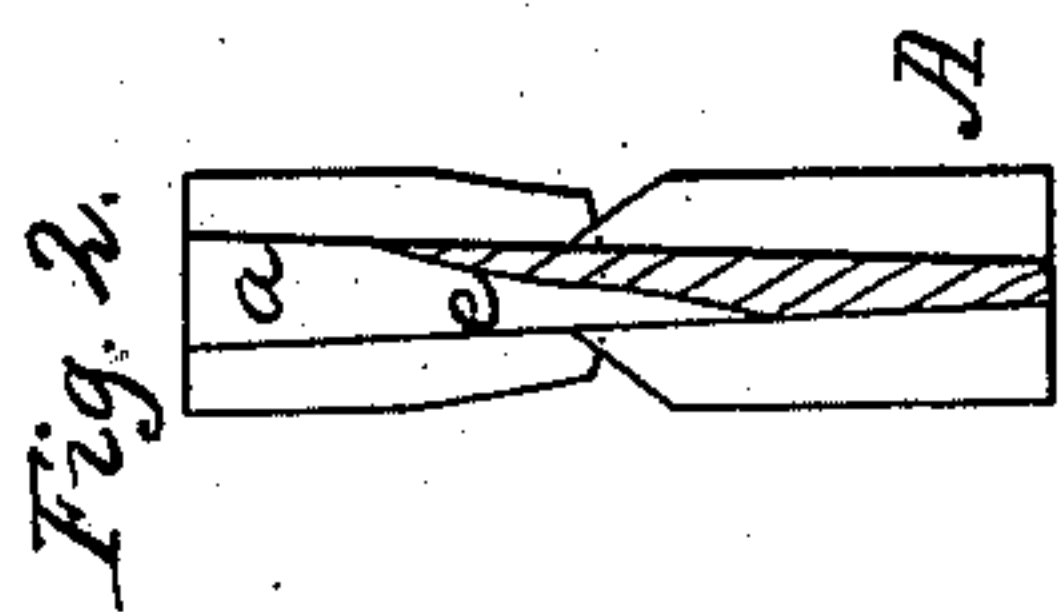


A.C. Fletcher,
Furnace-Grate Bar.

N^o 79,743.

Patented July 7, 1868.



Witnesses.

a. Lellere
McCombs

Inventor

A. C. Fletcher
per Brown & Coombes
attys

United States Patent Office.

ADDISON C. FLETCHER, OF NEW YORK, N. Y.

Letters Patent No. 79,743; dated July 7, 1868.

IMPROVEMENT IN GRATE-BARS.

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, ADDISON C. FLETCHER, of the city, county, and State of New York, have invented a new and useful Improvement in Grate-Bars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents a side view of a grate-bar constructed in accordance with my improvement.

Figure 2 is a vertical transverse section of the same through the dotted line *z z* in fig. 1, and

Figure 3 a plan of several such bars as arranged side by side to form a grate.

Similar letters of reference indicate corresponding parts.

This, my invention, consists in a peculiar hook-shaped construction to fuel-points or rests made in or on the upper edge of the bar by means of transverse recesses or air-ducts, preferably of a conical or other equivalent character, and communicating or connecting at their base with channels or ways of a reversely-tapering or diminishing description formed in the sides of the bars, the hooked-shaped construction of said fuel-points or rests serving to contribute to the durability of the bar by establishing cooling currents of air through them at or below their centres; also aiding the free circulation and supply of air to the ducts between the points; likewise assisting to lighten the bars, and to enlarge their facility for expansion without straining or warping.

Referring to the accompanying drawing, A represents the body of the bars, said body being formed on its upper edge with fuel-points or rests *a*, which are established by transverse recesses or air-ducts of a tapering or widening character from their throats or mouths *c*, so as to give an enlarged capacity in a gradual manner below said mouths for a free supply of air, and quick escape through the mouths to the fire-bed, such construction also establishing heat-conducting and radiating points or ends, *d*, to the fuel-rests *a* for heating the air as it passes to the fire, thereby aiding the combustion, and, by such abstraction of the heat, serving to keep the fuel-resting portions of the bar cool, and consequently adding to the durability of the bar.

Connected with the recesses or air-ducts *b*, at their bases, are tapering or downwardly-diminishing channels or ways, *e*, formed alternately on opposite sides of the bar for facilitating the escape of dust and ashes from the air-duct *b*, and for the supply of air to said ducts.

To add to the efficiency of such a bar as regards its establishing a copious or free circulation, and uniform distribution of air to the fire, with increased freedom for separate expansion of the fuel-points or rests *a*, so as to avoid warping of the bar, and better protection against burning, by cooling said points through a supply of air to or through them, contributing alike to the durability of the bar, and heating of the air in its way to the fire-bed, I give to said fuel-points or rests more or less a hook-like character by means of transverse branch openings, *f*, in communication with the ducts *b*, and extending upwardly to beneath the centres, or thereabouts, of the fuel-resting portions of the bars. These branch openings or hook-like shapes to the rests *a* it is preferred to arrange so that in each adjacent bar they face in opposite directions. By such hook-like shape to the fuel-points or rests, not only is increased durability to the bar insured, by reason of air entering the branches *f* from or up the channels *e*, and cooling the centres as it were of said rests, but such branches likewise afford additional heating-surfaces, thus expanding the volume of heated air escaping through the mouths or throats *c*, and laterally between the bars to support combustion, such hook-like formation of the fuel-points or rests also giving greater freedom for independent expansion of the latter.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The reduction of the fuel-bearing portions *a* of a grate-bar by the formation of air-ducts, *f*, therethrough, having communication with the main ducts *b* for the more thorough cooling and equalizing of the expansion of such portions, and increasing the air-heating surfaces, substantially as shown and described.

2. The combination of the passages *f*, the channels or ways *e*, and air-ducts *b*, with the fuel-points or rests *a*, all arranged substantially as shown and described.

ADDISON C. FLETCHER.

Witnesses:

A. LE CLERC,

E. P. TRACY.