W. FARRIS.

Grate-Bars.

No. 167,087. Patented Aug. 24, 1875.

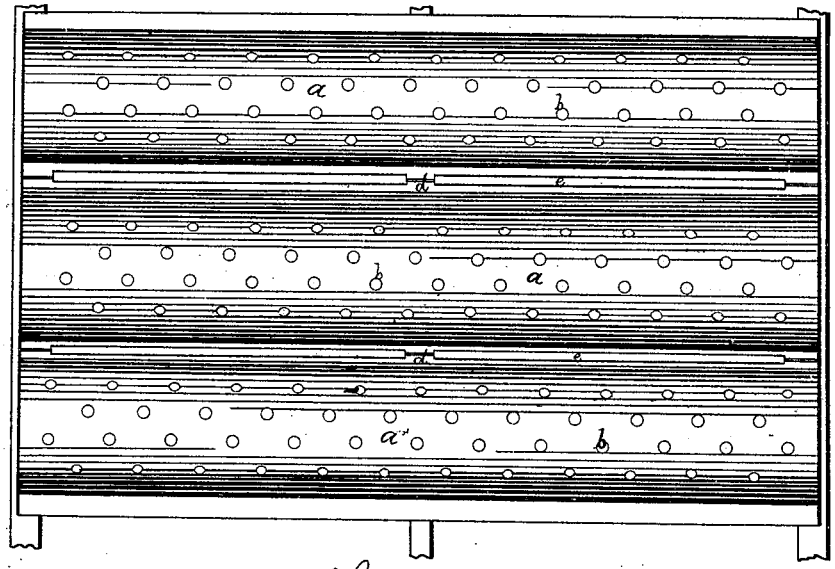

Fig. 1.

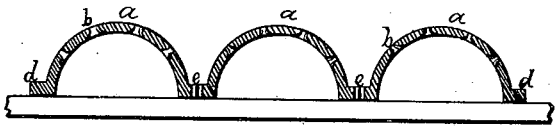

Fig 2

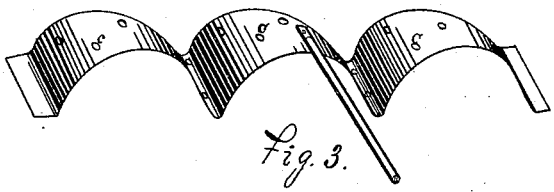

Fig. 3.

WITNESSES:

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atty

UNITED STATES PATENT OFFICE.

WILLIAM FARRIS, OF YARMOUTH, MAINE.

IMPROVEMENT IN GRATE-BARS.

Specification forming part of Letters Patent No. **167,087**, dated August 24, 1785; application filed January 7, 1875.

To all whom it may concern:

Be it known that I, WILLIAM FARRIS, of Yarmouth, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Furnace Grate-Bars; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a top plan view of my invention. Fig. 2 is a cross-section. Fig. 3 is a view of the grate-rake.

Same letters show like parts.

My invention relates to an improvement in the construction of grate-bars for furnaces, &c. It may be thus described:

a, in the accompanying drawings, shows the bar, arched as illustrated, and being provided with the perforations *b*. These perforations are enlarged or countersunk upon their under side, as illustrated in Fig. 2 of the drawings, and the purpose of having them thus made is that the ashes of the fuel may readily drop down into the ash-pan below.

It is well known that in the burning of fine coal, tan, &c., the ordinary grate-bars do not meet the requirements for the reason that the thickness of the bars and the width of the spaces between them prevent an even draft, and allow much of the fuel to drop into the ash-pan before being consumed. Another disadvantage arises from the use of the ordinary flat grate-bars, in that the fuel is apt to bed, and thus prevent a free and even draft.

My invention obviates these difficulties and allows a free draft of air up through the fuel in the furnace, and effectually prevents the bedding of the fuel by reason of the arched grates before described. Moreover, by having the grates thus arched, additional strength is obtained. These grates may be made in sections if desired. They are to be supported upon proper cross-bars.

Fig. 3 illustrates a rake for use with a furnace-grate of this description, and is of such shape as to conform to the shape of the bars. It is provided with perforations *c*. When it is desired to stir the fire, this rake is inserted in the front of the furnace and moved backward and forward, which movement causes what ashes there may be upon the top of the grate to fall through into the ash-pan below.

d show projecting pieces on the bars. When the said bars are placed in position, as shown in the drawing, they leave between them a narrow space, *e*, which facilitates the draft of the air up through the fuel.

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

1. The grate-bar formed of plate *a*, arched its whole length, as described, and having perforations at *b*, and provided with suitable projecting pieces *d*, substantially as and for the purposes set forth.

2. In combination with the arched grate-bars *a*, constructed as described, the rake or slicer *g*, perforated at *c*, and arched to fit over and operate upon said bars, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

WILLIAM FARRIS.

Witnesses:

FRANK H. JORDAN,

C. B. BROAD.