D. Byard,

Furnace Grate.

No. 108,327. Patented Oct. 18. 1870.

Fig. 1.

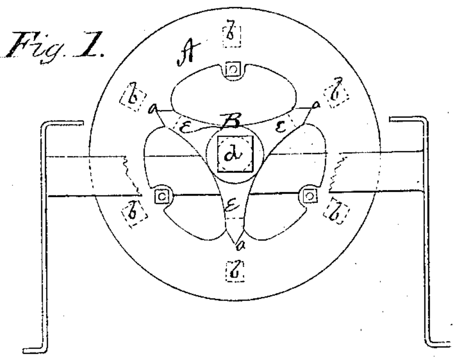

Fig. 3.

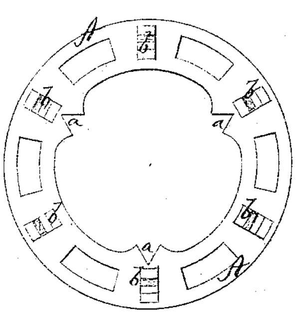

Fig. 2.

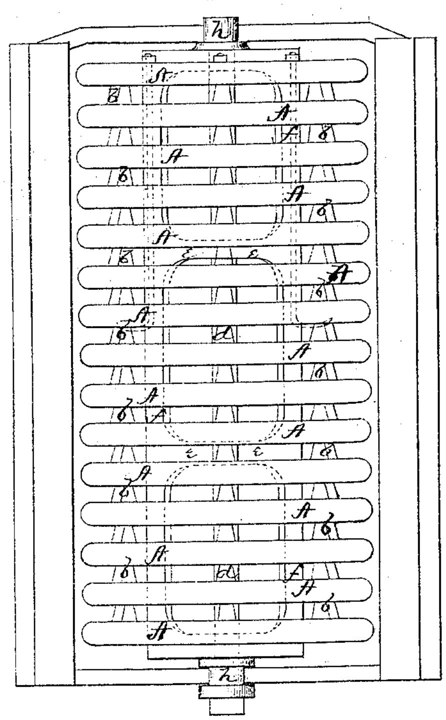

Fig. 4.

Witnesses:
C. L. Evert
A. N. Marr

Inventor:
David Byard
per Alexander & Mason
Attys.

United States Patent Office.

DAVID BYARD, OF SHARON, PENNSYLVANIA.

Letters Patent No. 108,327, dated October 18, 1870; antedated October 4, 1870.

IMPROVEMENT IN ROTARY 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, DAVID BYARD, of Sharon, in the county of Mercer and in the State of Pennsylvania, have invented certain new and useful Improvements in Rotary Grates; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, making a part of this specification.

My present invention is an improvement upon the grate for which Letters Patent were granted to me September 7, 1869, and consists—

First, in constructing the rings so as to protect the edges of the frame or bearing-bars from the heat or fire, without weakening the rings;

Second, in so placing the lugs on the sides of the rings that a current of cold air will pass between the inner ends of said lugs and the edge of the bearing-bars; and

Third, in making the center in one piece, whereby the frame is made to support and strengthen the shaft.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is an end view; and

Figure 2 is a plan view of my grate;

Figure 3 is a side view of one of the rings, showing the position of the lugs thereon; and

Figure 4 is a longitudinal vertical section of the same.

A A represent the rings of which my grate is composed, said rings being, on their inner circumference, provided with notches *a a*. At the points where these notches are, the ring is enlarged inward, so that the notches will not be cut out of the ring proper, but from these enlargements, and consequently the ring not weakened in any manner.

On the side of the ring are placed any desired number of lugs, *b b*, one of said lugs being placed directly opposite the inner corner of each notch *a*, and a short distance from it, as shown in fig. 3.

By this arrangement of the lugs *b b*, the edges of frame or bearing-bars are protected from the fire, and a current of cool air is allowed to pass between them and the lugs.

The outer surface of the rings A A is made rounding, so that any clinkers forming on it can be readily removed.

The frame or center B is composed of the shaft *d*, arms *e e*, and bearing-bars *f f*, all made in one piece, whereby, instead of the shaft *d* supporting the frame *e f*, as in my former patent, the frame is made to strengthen and support the shaft.

It will be seen that the journals *h h* of the shaft *d* are larger than the shaft itself, giving more durability where the wear is.

Having thus fully described my invention,

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

1. The construction and arrangement of the ring A, with notches *a a*, and lugs *b b*, as shown and described, and for the purposes set forth.

2. The combination of the shaft *d*, arms *e e*, and bearing-bars *f f*, when all are made in one piece, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing, I have hereunto set my hand and seal, this 14th day of February, 1870.

DAVID BYARD. [L. S.]

Witnesses:

WM. MORGANTHANE,

ABNER APPLEGATE.