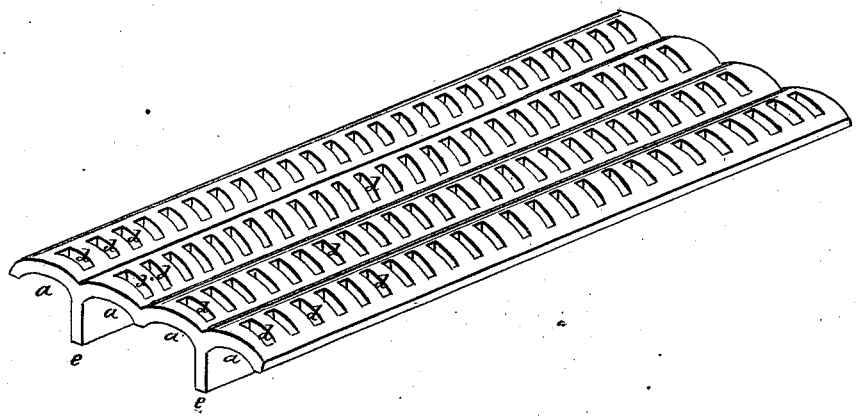
J. CLARK.

Furnace-Grate Bars.

No. 163,975. Patented June 1, 1875.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOSEPH CLARK, OF GREEN POINT, NEW YORK, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO ABEL BREAR, OF SAUGATUCK, CONNECTICUT, AND FRANK S. SMITH, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN FURNACE GRATE-BARS.

Specification forming part of Letters Patent No. **163,975**, dated June 1, 1875; application filed May 20, 1875.

To all whom it may concern:

Be it known that I, JOSEPH CLARK, of Green Point, in the county of Kings and State of New York, have invented a new Furnace Grate-Bar; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent a perspective view of a section of the grate.

This invention relates to an improvement in grate-bars for steam-boiler furnaces, and designed with special reference to the burning of finer grades of coal, such as pea-coal, but applicable to burning other grades; and it consists in a plate or bar composed of a series of longitudinal arches, as more fully hereinafter described, the object being to produce a very light open grate, and which, with the blast usually employed, it will be impossible to heat so as to warp or twist out of shape.

The grate is composed of several sections, one of which is shown in the drawings. These plates consist of a series of longitudinal arches, *a*, the convex side up, and each of these perforated with transverse slits *d*. Upon the under side one or more longitudinal ribs, *e*, are formed on the sections, at the junction of two of the arches. These arches are made thin, simply of sufficient strength to support the coal, and the whole grate made up of a combination of such sections supported on the usual bars for supporting other grates.

The blast is introduced beneath the grate, in the usual manner, and directly upon the under surface of the grate. This blast tends to so far cool the grate, in consequence of its thinness, that the heat will not penetrate the grate sufficiently to bring it to a red heat, or twist it out of shape.

The result is, that a grate of this construction will stand a very much longer time than a common grate, and a much larger portion of the surface of the grate is opened than can be with the usual bars; hence a more perfect combustion of the fuel is obtained.

I claim—

The herein-described grate-bar or section, consisting of a series of longitudinal perforated arches, *a*, substantially as set forth.

JOSEPH CLARK.

Witnesses:

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