W. TINKHAM.

Furnace-Grate.

No. 166,487. Patented Aug. 10, 1875.

Fig. 1

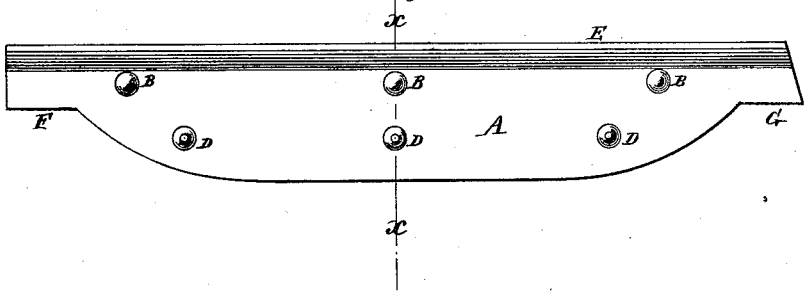
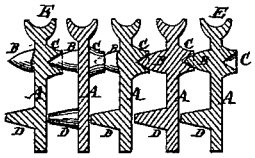


Fig. 2



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM TINKHAM, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN FURNACE-GRATES.

Specification forming part of Letters Patent No. **166,487**, dated August 10, 1875; application filed December 28, 1874.

To all whom it may concern:

Be it known that I, WILLIAM TINKHAM, of the city and county of Providence, Rhode Island, have invented a new and useful Improvement in Furnace-Grates, of which the following is a specification:

The desiderata in furnace-grates are maximum strength and minimum weight, or mass of metal, and unobstructed space for passage of air upward and escape of ashes downward, that the several bars of which the grate is composed shall be separate and detachable one from another, and yet adapted to be locked together to render them mutually self-supporting, and prevent vertical or lengthwise movement. The object of my invention is to provide a grate which shall possess these qualities, and to this end I adopt the construction hereinafter described.

Figure 1 is a side view of the grate; and Fig. 2 is a cross-section of Fig. 1, taken on the line *x x*.

Similar letters of reference indicate corresponding parts.

A represents the grate-bar, any number of which, placed together as seen in Fig. 2, form the grate. On one side of each bar are one or more conical points, B, and on the opposite side, corresponding in position with the conical points B, are conical sockets C, which receive the points B, as represented in Fig. 2. This arrangement makes the grate self-supporting, while the point of contact is reduced to a minimum. D are conical lugs cast on the side of the bar, which extend from one bar to the next, and serve to keep the bars steady and in an upright position. E represents the cap of the bar, which is of convex form, the convex side being connected with the bar A, the concave side being uppermost, as seen. This concave side will naturally fill with ashes and prevent the web or bar from becoming overheated. From the cap down the bar or web is broad and thin, and is supported by the conical points and sockets, and by the conical lugs D.

The point and socket B C may be made of one piece, inserted through the bar, a socket on one side, and a conical point on the other; or they may be placed on the bar, and more or less in number be used.

Instead of the lugs D there may be sockets and points to support the lower part of the grate; but I prefer the arrangement shown. F and G are the bearing-points of the grate.

By constructing the grate in this manner the web A may be made very thin and light, and be fully supported to render it desirable. The points of contact are so extremely small that they present no obstruction to the draft, nor a mass of iron to absorb heat and affect the web.

I do not claim a grate-bar provided with projections and sockets; but,

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

In a furnace-grate, the combination of the series of bars A, having flat sides, and provided with the coincident and engaging conical projections B and sockets C, and the lower row of points D, all as shown and described, whereby the bars are locked together and made mutually supporting, as shown and described.

WILLIAM TINKHAM.

Witnesses:

FRANKLIN METCALF,

F. W. GRAMMONT.