L. STERNBERGER.

Furnace-Grate.

No. 221,123. Patented Oct. 28, 1879.

Fig. 1

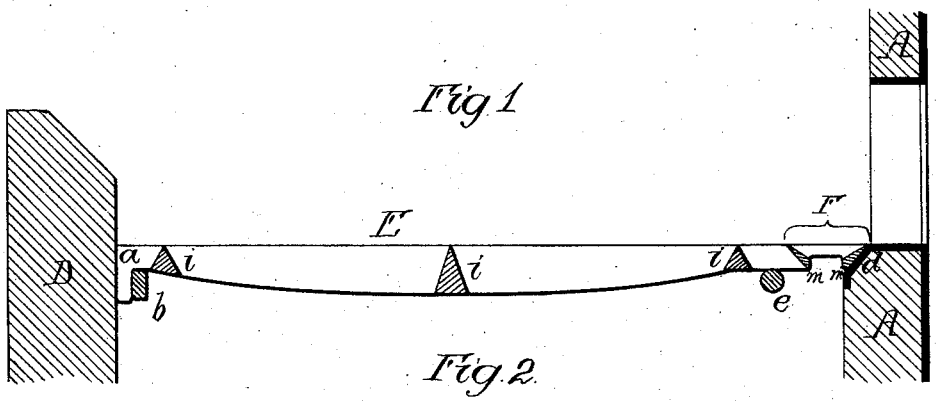


Fig. 2

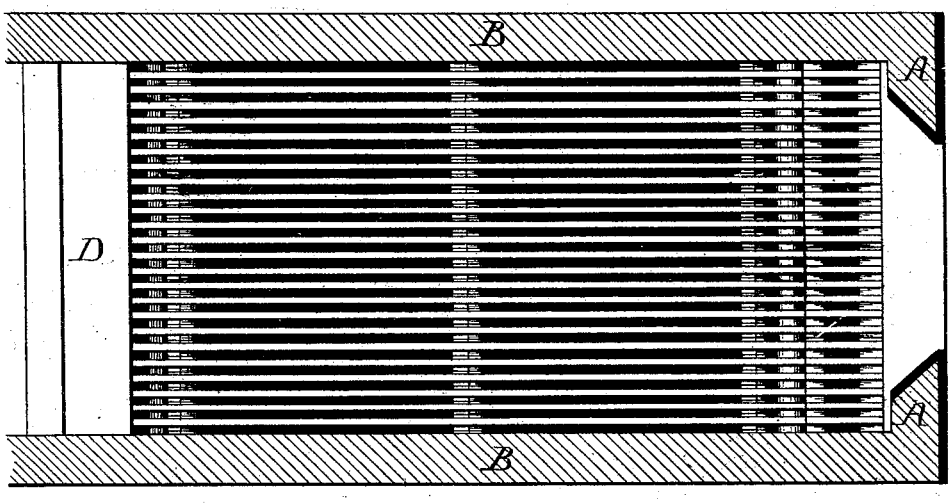


Fig. 3

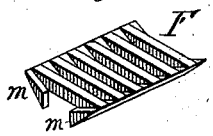
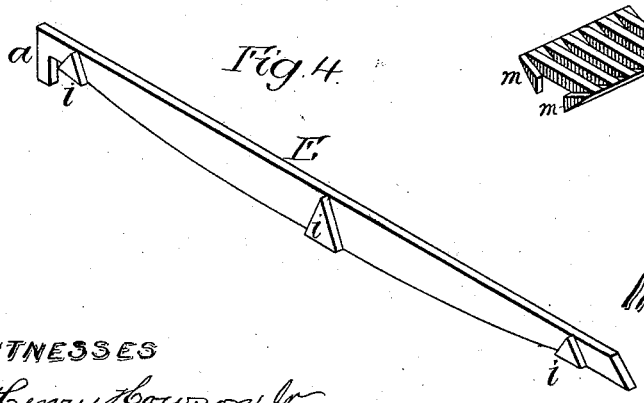


Fig. 4



WITNESSES

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UNITED STATES PATENT OFFICE.

LEOPOLD STERNBERGER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN FURNACE-GRATES.

Specification forming part of Letters Patent No. **221,123**, dated October 28, 1879; application filed April 8, 1879.

To all whom it may concern:

Be it known that I, LEOPOLD STERNBERGER, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Furnace-Grates, of which the following is a specification.

The object of my invention is to prevent, to a great extent, the warping or bending of the grate-bars of a furnace, or the distention of the walls of the furnace due to the expansion of the grate-bars when heated; and this object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional view of sufficient of a furnace to illustrate my invention; Fig. 2, a sectional plan view, and Figs. 3 and 4 detached perspective views.

A is the front wall of the furnace; B B, the side walls; D, the bridge-wall, and E the grate-bars, the latter being furnished at the rear ends with hooked projections *a*, which are adapted to a bar, *b*, extending transversely across the furnace beneath the grate. The front ends of the bars of the grate are beveled, as shown in Figs. 1 and 4, and bear against the correspondingly-beveled rear edge of a grating, F, the front edge of which is also beveled, and bears against the beveled face of a plate, *d*, secured to or forming part of the front wall, A, of the furnace.

The front ends of the grate-bars are supported by a transverse rod, *e*, so that said bars are free to expand longitudinally, the effect of such expansion, owing to the beveled edges of the grating F, being to elevate such grating to an extent commensurate with the degree of expansion of the grate-bars, the grating resuming its former position when the bars have contracted to their normal length.

The grating F is made in sections, one of which is shown in perspective at Fig. 3, so that when a part of the grating becomes burned out or otherwise defective, said part may be renewed without necessitating the renewal of the entire grating.

The lugs *i* on the grate-bars have opposite beveled edges, as shown in Fig. 1, for the purpose of facilitating the passage of ashes through the grate, and for permitting the access of air to all parts of the bed of fuel on said grate, and the connections *m* between the ends of the bars which constitute the grating F have their inner edges beveled for the same reason.

The invention may be applied to circular grates, if desired, the grating F in such case being made in the form of a ring which surrounds the main grate.

In some cases a plate may be substituted for the grating F; but the latter is of course preferred.

I claim as my invention—

1. The combination of the grate, having bars E, with beveled ends, the beveled plate *d*, and a plate or grating, F, having beveled edges adapted to the ends of the grate-bars and to the plate *d*, all substantially as specified.

2. The combination of the grate E and the plate *d* with a plate or grating, F, made in sections, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LEOPOLD STERNBERGER.

Witnesses:
WILLIAM J. COOPER,
HARRY SMITH.