

A. E. SMENNER.
Fire-Places.

No. 148,993.

Patented March 24, 1874.

Fig 3.

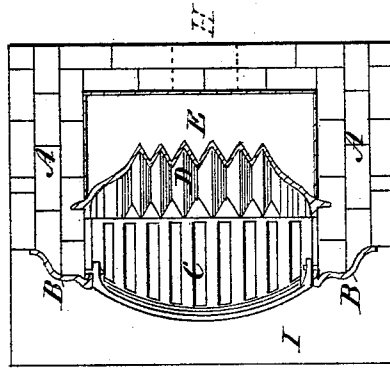


Fig 2.

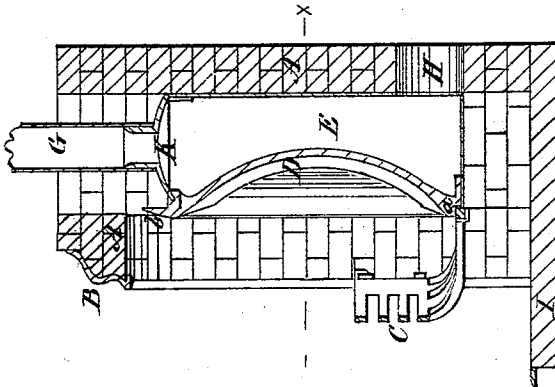
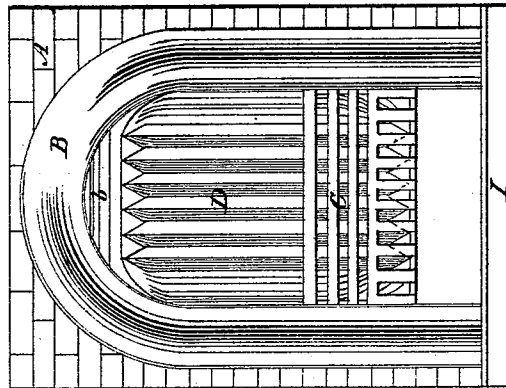


Fig 1.



Witnesses:

Thos. Jewell
Harry Coleman

Inventor:

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UNITED STATES PATENT OFFICE.

ALFRED E. SMENNER, OF CUMBERLAND, MARYLAND.

IMPROVEMENT IN FIRE-PLACES.

Specification forming part of Letters Patent No. 148,993, dated March 24, 1874; application filed January 20, 1874.

To all whom it may concern:

Be it known that I, ALFRED E. SMENNER, of Cumberland, in the county of Alleghany and State of Maryland, have invented an Improved Construction of Grate-Back for Fire-Places, of which the following is a specification:

This invention consists of a grate-back, made in one piece, and that may be set or built in more easily and securely than any now in use, and whereby great strength and freedom for expansion and contraction are afforded, without danger of cracking, and having a peculiar curvature both vertically and transversely, providing a large amount of radiating surface on curves and angles best adapted to deflect the heat into the apartment it is designed to warm.

In the accompanying drawing, Figure 1 represents a grate with my improved back applied. Fig. 2 is a central vertical section of the same; and Fig. 3, a horizontal section taken on the line *xx* on Figs. 1 and 2.

The same letters of reference indicate like parts in the several figures.

The chimney and fire-place being of the ordinary construction are here represented by the brick-work A and hearth-stone I. The breast-plate B and fire-basket C are also of common form and construction, and are attached and secured to the brick-work or masonry in the ordinary manner. These, therefore, need no particular description here. I construct the fire-back D of a somewhat elliptical form, both in its vertical and transverse sections, by which the greatest amount of reflection and radiation of heat into the room is obtained. This back is furthermore corrugated in its central portion to admit of expansion and contraction without fracture, and at the same time to increase the radiating surface. The lower angle of this back is rabbeted at *a* to overlap the cross-bar at the rear lower edge of the basket C, so as to allow it

to shed the dust and cinders from the cavities of the corrugations. The upper edge *b* of said back forms the arc of a circle, or nearly so, when viewed from the front, and in vertical section, as seen in Fig. 2, inclines backward to facilitate the passage of the products of combustion into the flue, and thereby not only to increase the draft, but also to spread the caloric across the entire width of the back D. The air-chamber E is formed by the back and sides of the brick-work of the chimney and the fire-place back D, before described, and the said air-space is covered by a plate, preferably of cast-iron, of arched or upwardly-inclined form toward its exit-flue, G, to cause the heated or rarefied air to circulate in said heating-chamber and escape more readily through said flue without obstruction. The pipe or air-flue G may be extended to the upper part of the same apartment or into the story above, as desired. The cold air is admitted to this chamber E through an aperture, H, at any convenient point at or near the bottom of said chamber. The air coming in contact with the heated fire-back D becomes rarefied and passes upward, as before described, to any apartment provided with a register connected with the flue G.

Having thus described my improved fire-back, its operation, and advantages, what I claim as new, and desire to secure by Letters Patent, is—

A fire-back extending upward from the lower portion of the fire-basket and from side to side thereof, constructed approximately of elliptic form in both its vertical and transverse sections and with corrugations in its central portion, substantially as shown and described.

ALFRED E. SMENNER.

Witnesses:

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