

No. 41,019,

PATENTED DEC. 22, 1863.

T. F. RANDOLPH.
HOT AIR GRATE.

Fig. 1.

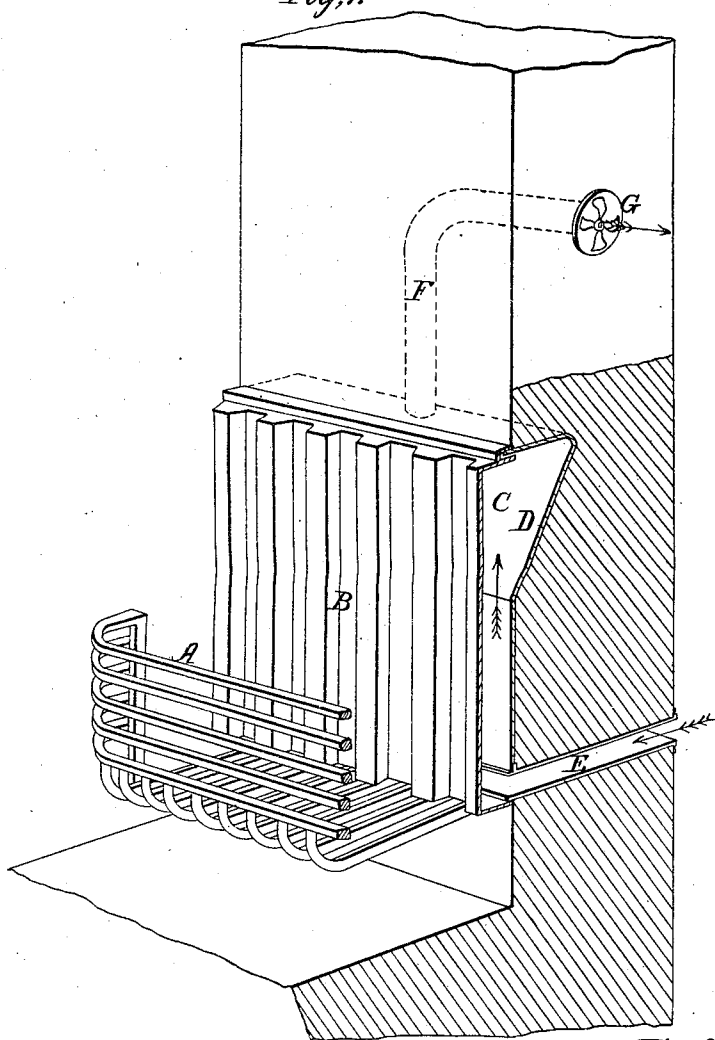
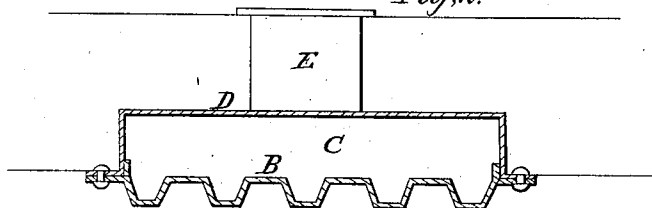


Fig. 2.



Witnesses.

Charles L. Fisher.
W. C. Henry.

Inventor.

Theodore L. Randolph.

UNITED STATES PATENT OFFICE.

THEODORE F. RANDOLPH, OF CINCINNATI, OHIO.

IMPROVEMENT IN HOT-AIR GRATES.

Specification forming part of Letters Patent No. 41,019, dated December 22, 1863.

To all whom it may concern:

Be it known that I, T. F. RANDOLPH, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Hot Air Grates; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and letters of reference marked thereon, forming part of this specification.

My invention relates to an improvement on the hot-air grates invented by John McMurtry, patented January 22, 1861; and it consists in making the hot-air chamber, or all the sides thereof, in addition to the corrugated fire-back, of sheet or cast metal, either riveted or otherwise appropriately secured to the corrugated fire-back, forming therewith a tight chamber more secure from smoke and more conveniently arranged in the fire-place than when the chamber is formed by the bricks in connection with the corrugated back.

In the accompanying drawings, Figure 1 is a sectional perspective of the grate, fire-back, and hot-air chamber. Fig. 2 is a horizontal section of chamber, showing a mode of uniting the sheet or cast metal part of the chamber to the cast-metal fire-back.

Like letters of reference indicate corresponding parts in the different figures.

A is the grate. B is the corrugated fire-back. C is the hot-air chamber, and D is the metallic case united to the fire-back and forming therewith the hot-air chamber C. E is a cold-air duct, and F a hot-air duct. The air is taken from without, or from near the floor of the apartment in which the grate is situated, and is conducted through the passage or duct E into the hot-air chamber C, through which it ascends and becomes heated, and is thence conveyed away by the duct F, either to another apartment or into the room in which the grate is placed, through register G.

The operation of this apparatus will be perfectly understood without further explanation. It has been customary to form the chamber C in the rear of the fire back by setting the bricks inward a suitable distance from the rear face of the metal back, leaving a chamber between. In this plan of construction the joints made by the bricks and mortar with the metal are very insecure, and the contraction and expansion caused by the fire in the grate causes them to part and allows smoke from the grate to be admitted to the hot-air chamber, which is of course immediately conducted with the hot air through the duct F into the room.

By uniting the chamber closely with the fire-back—in fact, making the back and chamber complete in one part—the apparatus can be fitted up in the work-shop and made entirely secure; and when required to be set in a fire-place the work can be more rapidly and conveniently done, and without any risk of making imperfect joints, which would require the entire apparatus to be taken out and reset.

I do not claim the hot-air chamber C as constructed and arranged in the invention of John McMurtry, patented January 22, 1861; but

What I claim as my invention, and desire to secure by Letters Patent, as an improvement upon said device, is the following:

Making the hot air chambers C in the rear of the corrugated fire-back B of sheet or cast metal, securely joined to the fire-back and forming therewith a tight chamber, secure from smoke, as herein specified.

THEODORE F. RANDOLPH.

Witnesses:

WM. CLOUGH,
D. S. REID.