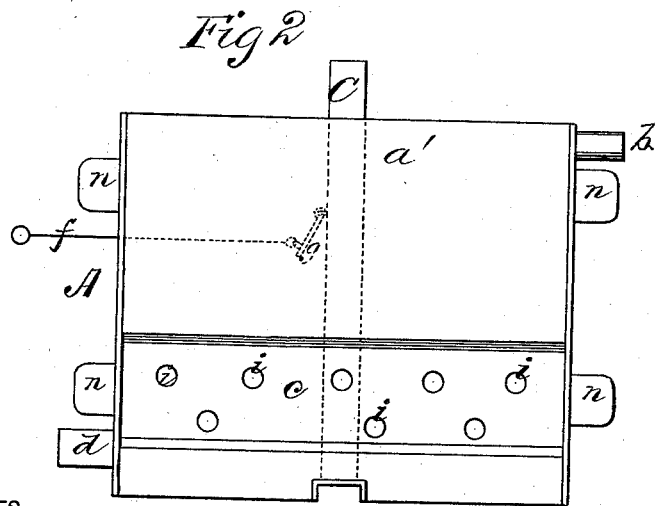
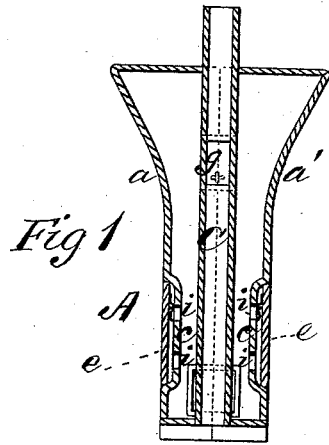


G. W. J. WOLTZ.
Fire-Backs.

No. 198,960.

Patented Jan. 8, 1878.



WITNESSES
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UNITED STATES PATENT OFFICE.

GEORGE W. J. WOLTZ, OF GREENFIELD, OHIO.

IMPROVEMENT IN FIRE-BACKS.

Specification forming part of Letters Patent No. 198,960, dated January 8, 1878; application filed June 9, 1877.

To all whom it may concern:

Be it known that I, GEORGE W. J. WOLTZ, of Greenfield, in the county of Highland and State of Ohio, have invented a new and valuable Improvement in Fire-Backs; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of vertical cross-sectional view of my invention; and Fig. 2, a side view thereof, showing the fire-plate removed.

This invention has relation to improvements in that class of fire-backs wherein a space behind the same is utilized for heating air, which is conducted, after being charged with caloric, into an apartment to be warmed.

The nature of the invention consists in combining, with such a back having an induct for cold and an educt for hot air, a tube extending through the air-space, and provided with a register, which, when open, will deliver the accumulated or accumulating gases into said tube, thereby preventing them from vitiating the air of the room to be warmed.

It also consists in providing said back with a removable plate at that point where it is exposed to the most intense heat, so that said plate is burned out or cracked it may be readily replaced, and in perforating the back proper in rear of said plate, so that the heat may be radiated from it into the air-space, and warping thereof be effectually prevented, as will be hereinafter more fully explained and claimed.

In the annexed drawings, the letter A designates my improved grate-back, which I have here shown as double, and as inserted in the party-wall of two adjoining buildings, one of its concave faces, *a*, being the grate-back of one house, and that *a'* of the other. I do not, however, confine myself to the double back, as the same principles are applicable and equally effective in the single back.

As shown in Fig. 1, the fire-surfaces of the

backs are rectilinear at their lower parts, and outwardly curved at their upper ones, thus radiating the heat into the apartment, and are vertical at their ends. These backs are provided near their lower edges with an induct, *d*, and diagonally opposite with an educt, *b*, through which the heated air will be delivered into the room to be heated, its supply being regulated by the usual register.

As shown at *c*, Fig. 1, the lower portion of the fire-walls *a a'* are retracted beyond the plane of the rectilinear portion thereof aforesaid, and the recess thus formed is covered by a metallic plate, *e*. This plate is removably secured in place, so that, should it become cracked, be burned out, or made otherwise ineffective, it may be readily detached and a new one substituted therefor.

In order to prevent this plate from warping under the influence of intense heat, the wall of the back in rear thereof is provided with numerous perforations, *i*, that by allowing the contact of comparatively cool air therewith will have the desired effect. These perforations also allow heat to be radiated from plate *e* into the air-space B of the back.

C indicates a metallic tube, extending entirely through the bottom and top of the back. This tube has at its middle point a register, *g*, operated through a rod, *f*, and it communicates at its upper end with the chimney-flue. Should there be an accumulation of gas in the air-space, this register is opened, and the gas will then pass out through tube *C* into the smoke flue, instead of vitiating the air of the room. This provision is rendered necessary by the fact that however carefully the joints of the back may be packed, there will always be an escape of gas into the air-chamber, which, wanting other exit, will be discharged into the room.

When the double back is used it will be cast in two sections, with lugs *n* upon their edges for bolting them together; but when single ones are employed they are cast in one piece.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the hollow back A, having cold-air induct *d* and hot-air educt *b*, of the gas-discharging tube C, having register *g*, substantially as specified.
2. The combination, with the fire-back A, having air-chamber B, of the removable plate *e*, substantially as specified.
3. The combination, with hollow fire-back A, having recess *e*, with perforations *i*, of the removable fire-plate *e*, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

G. W. J. WOLTZ.

Witnesses:

W. F. GALBREATH,
LEWIS LEIB.