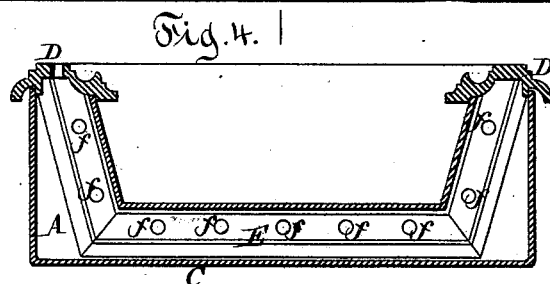
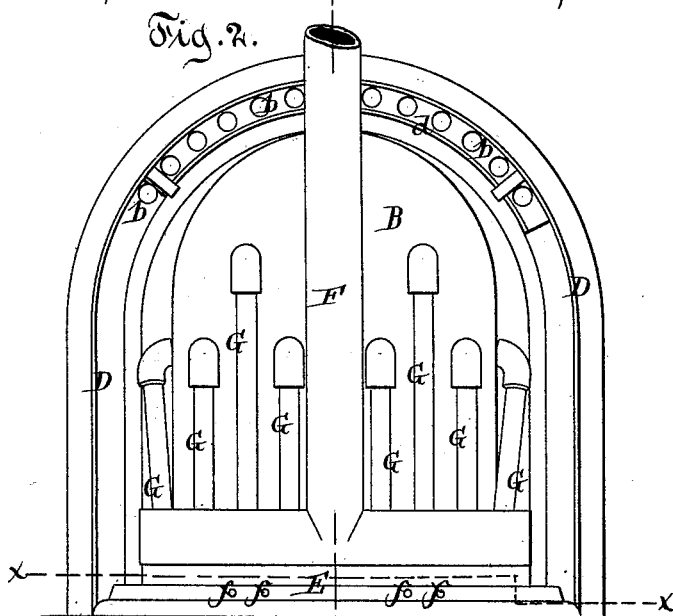
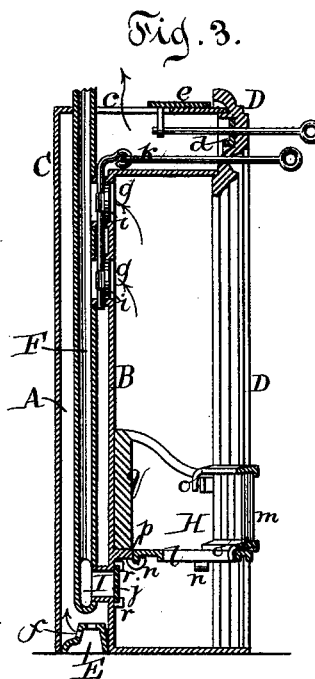
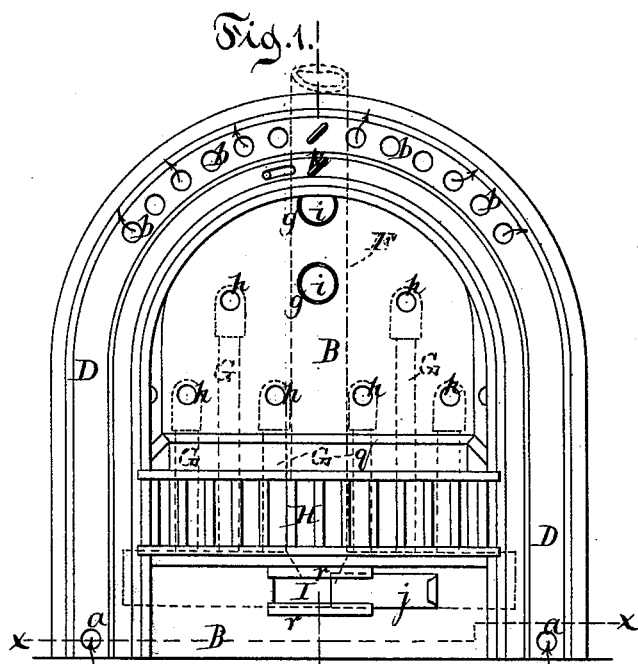


G. W. HILLER.
Fire-Place Heater.

No. 220,615.

Patented Oct. 14, 1879.



Inventor.
Geo. W. Hiller.
by Van Santvoord & Hauff
his attys.

Witnesses.
Chas. W. Wahlen.
William Miller

UNITED STATES PATENT OFFICE.

GEORGE W. HILLER, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN FIRE-PLACE HEATERS.

Specification forming part of Letters Patent No. **220,615**, dated October 14, 1879; application filed April 23, 1879.

To all whom it may concern:

Be it known that I, GEORGE W. HILLER, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Fire-Place Heaters; which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a front view of a heater constructed according to my invention. Fig. 2 is a rear view of the same. Fig. 3 is a vertical cross-section of the same. Fig. 4 is a horizontal section thereof in the plane of the line *x x*, Figs. 1 and 2.

Similar letters indicate corresponding parts.

My invention relates especially to that class of fire-place heaters having a hot-air chamber in the rear of the fire-back communicating with apartment in which the heater is located, and communicating with the upper rooms of the building; and it consists—

First. In the combination, with a hot-air chamber formed in the rear of a fire-back of a fire-place, of a smoke-flue having one or more branches near the base of said fire-back, a series of tubes leading downward from openings in the fire-back to said branch or branches of the smoke-flue, and one or more passages opening from the upper part of said fire-back directly into the smoke-flue, and provided with means for opening and closing them when desired. The direct passage or passages from the fire-back to the smoke-flue, should be opened while a fire is being kindled, and until the fuel is thoroughly ignited, in order that a forcible direct draft may be obtained to facilitate the ignition, and should then be closed, when the products of combustion will pass downward through the tubes leading to the branch or branches of the smoke-flue and cause said tubes to become heated and communicate heat to the air in the hot-air chamber, the heated air being conducted by suitable passages to the apartment.

Second. In the combination, with a hot-air chamber formed in the rear of the fire-back of a fire-place, of a series of tubes leading from openings in said fire-back to branches of a smoke-pipe near the bottom of the hot-air chamber, a foraminous cold-air flue traversing the lower part of said hot-air chamber and

connecting with suitable air-supply openings, and suitable passages leading from the hot-air chamber to the apartment in which the fire-place is located, as hereinafter more particularly described, whereby a supply of cold air is introduced into and evenly distributed in the hot-air chamber, thoroughly heated, and conducted to the apertures through which it passes into the apartment.

In the drawings, the letter A designates the air-chamber of my heater formed or bounded by the fire-back B, a bonnet, C, and the front plate D. Cold air is admitted to this chamber through holes *a* formed in the bottom part of the front plate D on opposite sides of the fire-place, while it escapes therefrom by holes *b c*, the holes *b* being also formed in the front plate and leading into the apartment in which the heater is located, and the hole *c* being intended to connect with a flue leading to an upper room or rooms, while both the holes *b* and the holes *c* are provided with a damper, *d* or *e*. The letter E designates a flue by which the cold air is distributed in the air-chamber A. This flue extends along the bottom of the air-chamber A from one to the other of the holes *a*, and it has apertures *f* at divers points, by which it communicates with the air-chamber. In the fire-back B are formed a series of holes, *g h*. To the holes *g* is connected a pipe, F, adapted to lead into a chimney, and said holes are each provided with a damper, *i*, operated by a rod, *k*, while to each of the holes *h* is connected one end of a pipe, G, the other end of which is connected to a branch of the chimney or smoke pipe, as seen in Fig. 2.

The letter H designates the grate of my heater. When a fire is built on this grate the dampers *i* are to be opened and the fire-place covered by an ordinary screen, when the smoke escapes into the smoke-pipe mainly through the holes *g*; but when the fire ceases to smoke the dampers *i* are to be closed, when the escaping heat passes through the pipes G, from which it is radiated into the hot-air chamber A.

The letter I designates an opening formed beneath the grate H in the fire-back B for the escape of dust, to this opening being connected the lower part or end of the smoke-pipe F. With the opening I is combined a cover or

damper, *j*, sliding in guides *r*, whereby it may be closed at will.

The grate *H* is constructed in two parts or sections, *l m*, the part *l* being horizontal and constituting the bottom of the grate, while the part *m* is vertical and forms the front thereof. The said two parts *l m* of the grate are supported by means of hooks *n o* or other similar devices attached to the fire-back *B*. By this arrangement it is made practicable to remove and replace the grate *H*, and hence the same can readily be emptied or cleaned. The hooks *n* supporting the bottom *l* of the grate form part of a ledge, *p*, serving to support fire-bricks *q*, by which the fire-back *B* is lined.

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

1. The combination, with a hot-air chamber formed in the rear of the fire-back of a fireplace, and suitable passages leading therefrom to an apartment to be heated, of a smoke-flue having one or more branches near the base of the fire-back, a series of tubes leading down-

ward from openings in the fire-back to said branch or branches of the smoke-flue, and one or more passages leading from the upper part of said fire-back directly to the smoke-flue, and provided with means for opening and closing when desired, substantially as and for the purpose set forth.

2. The combination, with a hot-air chamber formed in the rear of the fire-back, of the series of tubes leading from the openings in the fire-back to the branches of the smoke-pipe, the perforated cold-air flue traversing the lower part of the hot-air chamber and connecting with openings in the front plate, and suitable passages leading from the hot-air chamber to the apartment, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 21st day of April, 1879.

GEO. W. HILLER. [L. s.]

Witnesses:

W. HAUFF,

CHAS. WAHLERS.