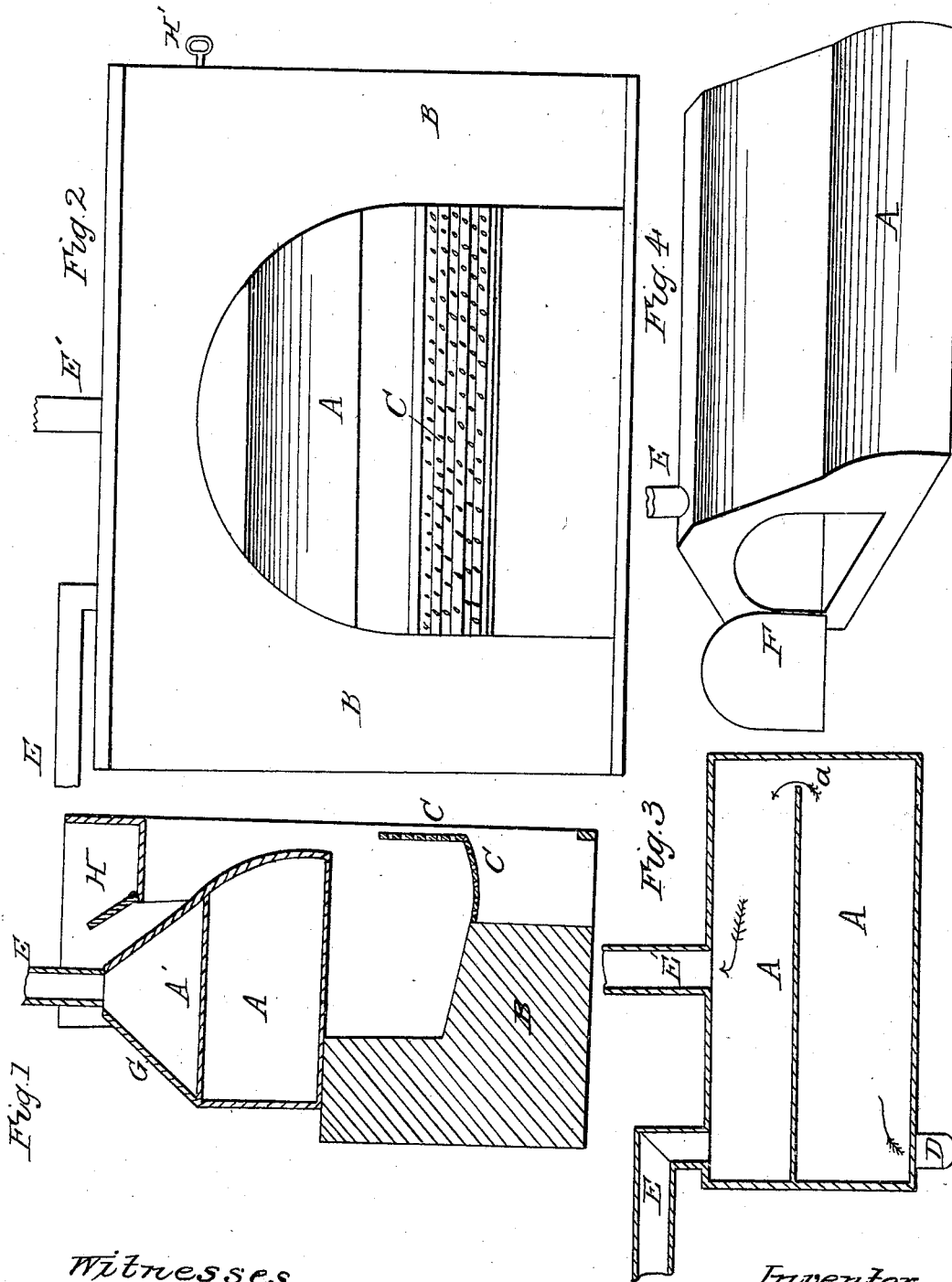


G. MOODY.

Fire Place.

No. 52,375.

Patented Jan'y 30, 1866.



Witnesses  
J. J. Corbitt  
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# UNITED STATES PATENT OFFICE.

GRANVILLE MOODY, OF PIQUA, OHIO.

## IMPROVEMENT IN FIRE-PLACES.

Specification forming part of Letters Patent No. 52,375, dated January 30, 1866.

*To all whom it may concern:*

Be it known that I, GRANVILLE MOODY, of Piqua, in the county of Miami, in the State of Ohio, have invented a new and useful air-furnace to be applied to ordinary chimneys, over hearth or grate, in connection with the use of any kind of ordinary fuel, by means of which the heat that ordinarily escapes through the chimney is economized and made to serve a useful purpose in heating air in said furnace, to be thence conveyed to rooms to warm them; and I hereby declare that the following is a full and exact description thereof, reference being had to the following drawings and the letters of reference marked thereon.

The nature of my invention consists in placing, in an ordinary chimney for burning either wood or coal, over the hearth or grate, an air-heating furnace or chamber, formed of either wrought or cast iron, with an induction-pipe for introducing cold air from the outside of the building into said furnace or chamber, and a pipe or pipes for conveying the same air, after becoming heated in said chamber, into any room or rooms on the same level or above.

In the accompanying drawings, Figure 1 represents a vertical cross-section of a fire-place with my air-heating furnace or chamber in position. Fig. 2 is a front view of the same, showing a fire-place with a grate. Fig. 3 is a vertical longitudinal section of the air-heating furnace or chamber detached from the chimney. Fig. 4 is a perspective view of said furnace or chamber, detached as aforesaid, with a door in one end, for the purpose hereinafter described.

Like letters refer to the same parts in all the figures.

I construct my air-heating furnace or chamber of wrought or cast iron, and it may be made in one, two, or more pieces, as may be found most convenient and economical. It is made in the form of a box resembling in shape a double or ridge roofed cottage; although I do not confine myself to this exact form. This box must be long enough to extend clear across the width of the fire-place, and may be somewhat longer. It is set in the chimney over the grate or fire-hearth, at a sufficient height above the fire to receive on its bottom and front side the greatest amount of heat from the ascending flame and other products of

combustion. The front slope of the roof forms the back wall of the chimney's throat.

In the accompanying drawings, A represents the air-heating furnace or chamber; B, the masonry of the fire-place and chimney in which it is set; C, the grate; D, an induction-pipe for introducing cold air from the outside of the building into the furnace or chamber, and E and E' pipes for conveying heated air from the furnace to any room it may be desired to warm.

The furnace or chamber A is divided into two compartments by a horizontal plate, A', at one end of which there is an opening, *a*, to admit the passage of air from the lower to the upper compartment. The cold air is introduced into the lower compartment through the induction-pipe D, at the opposite end from said opening *a*, so that the air is compelled to take a circuit within the furnace, and to become highly heated by exposure to the bottom, front, and roof of the same before escaping therefrom. I prefer to make the front side of the furnace longer from base to apex than the opposite side, and to give said front side a curved form, as shown in Figs. 1 and 4, which has the effect of exposing a larger surface to the direct action of the fire.

It is manifest that the furnace may be divided into more compartments than two, and the air may be thereby compelled to take a longer circuit by means of additional dividing-plates, like A'.

As I have hereinbefore stated, the front slope of the roof of the furnace forms the back wall of the throat of the chimney, and the back slope of said roof forms an inclined offset and cavity back of said throat, into which the flame and heated products of combustion will dive and revolve after passing through the throat and before ascending the chimney, thus heating the back part of said roof, causing the unconsumed gases to be there subjected to more perfect combustion, and increasing the draft of the chimney. I have ascertained by experiment that by this means smoking chimneys may be cured and made to draw perfectly.

By extending my furnace or chamber clear across the abutment of the chimney and placing a door at one end, as shown in Fig. 4, I make said furnace subserve the purposes of an oven for culinary purposes.

A damper, H, consisting of a hinged slat lying across the chimney just above the arch or lip of the fire-place, and operated by a rod, H', enables me to regulate the draft of the chimney by increasing or diminishing the capacity of the throat at pleasure.

The heated air from the furnace may be introduced into the room in which the furnace is located, or into any other room on the same floor, by means of the horizontal pipe E, or into rooms above by means of the vertical pipe E'. When not used for heating, these pipes, in connection with the induction-pipe D, serve the purpose of ventilating the house and supplying it with fresh air.

The front side of my furnace, being brought forward near the front of the fire-place, serves as a powerful radiator to throw heat, by radiation, directly into the room in which it is located.

It will be seen that my furnace, consisting, as it does, of a simple, cheap, portable box, may be set into any ordinary fire-place at trifling expense, by a slight alteration of the mason work, which any ordinary mechanic can readily make, and that no cast-iron jambs or back plates are required in connection with it.

I am aware that the principle of heating air for warming rooms in furnaces located over and back of the fire, in ordinary chimneys, is not new, the same having been carried into effect in divers forms, in connection with expensive cast-iron fire-places. I am not aware, however, that said principle has ever before

been carried into effect by means of a simple and cheap portable box-furnace, adapted to be set into an ordinary fire-place, without any other attachments or complications except the necessary induction and eduction pipes.

I do not therefore claim, broadly, the principle of heating air for warming rooms in a furnace located over or back of the fire in an ordinary chimney, with an induction pipe for introducing cold air into said furnace, and an eduction pipe or pipes for conveying heated air from such furnace to the room or rooms to be warmed; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The portable ridge-roofed box-furnace constructed substantially as herein described, adapted to be set in an ordinary fire-place, as described, in combination with induction and eduction pipes, as described.

2. In combination with the box-furnace constructed, located, arranged, and operating substantially as described, the damper H, arranged and operating substantially as described.

3. In combination with an air-heating furnace constructed, located, and arranged as herein described, an inclined offset and cavity back of and below the apex of the roof of said furnace, as shown at G in the drawings, as and for the purposes described.

GRANVILLE MOODY.

Witnesses:

J. J. COOMBS,  
THOMAS C. CONNOLLY.