(No Model.)

A. T. BENNETT.

FIRE PLACE.

No. 342,776. Patented June 1, 1886.

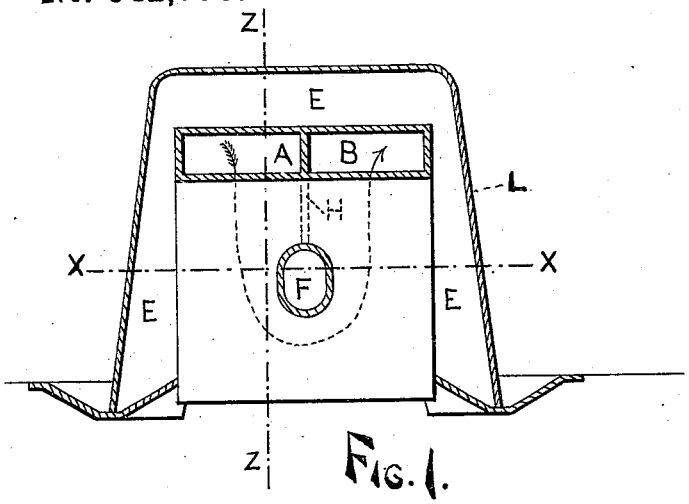

FIG. 1.

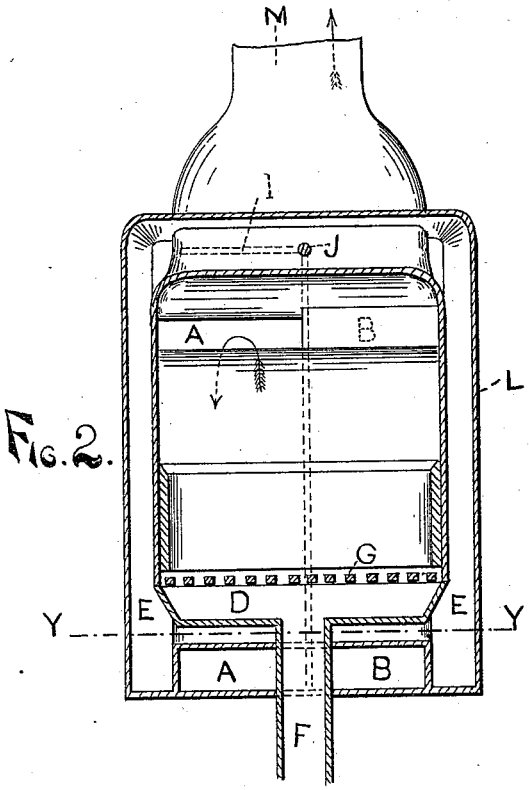

FIG. 2.

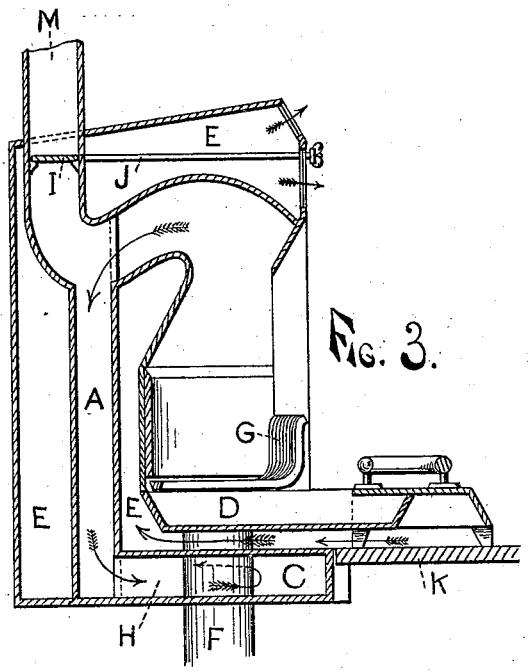

FIG. 3.

WITNESSES:
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UNITED STATES PATENT OFFICE.

ALLAN T. BENNETT, OF CHICAGO, ILLINOIS.

FIRE-PLACE.

SPECIFICATION forming part of Letters Patent No. 342,776, dated June 1, 1886.

Application filed November 20, 1884. Serial No. 148,450. (No model.)

To all whom it may concern:

Be it known that I, ALLAN T. BENNETT, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Fire-Place, of which the following is a specification.

My invention relates to an open grate with a reversible flue for heating rooms and buildings; and the objects of my invention are to secure in an open grate the advantages of a reversible flue, in order to economize the heat to the fullest possible extent, and to combine with the advantages of an open grate those of a hot-air furnace. I attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a horizontal sectional view on line *y y* of Fig. 2. Fig. 2 is a vertical sectional view on line *x x* of Fig. 1, and Fig. 3 is a vertical sectional view on line *z z* of Fig. 1.

Similar letters refer to similar parts throughout the several views.

In the drawings, G is the open grate, which receives the fuel for combustion. It is provided with a flue which opens directly into the flue A, as shown in Fig. 3.

A is the direct flue to the chimney or smoke-stack M, but which may be closed by means of the damper I.

B is the flue which conveys the smoke from the flue A to the chimney M when the flue A is closed by the damper I.

C is a heating-chamber beneath the ash-pan D, which pan is connected by means of the tube F with the ash-pit beneath the chamber C. The chamber C opens into the flues A and B beneath the air-chamber E and in front of the tube F, and it serves as a continuation of the flue A.

H is a partition in chamber C, extending from the tube F to the back side of C, thus causing the smoke and hot gases to pass through the chamber C in front of the tube F, in order to pass from flue A to flue B, as more fully described below.

K is the floor of the room.

E E is an air-chamber surrounding the grate and flues A and B, as shown in the drawings. The cool air enters the chamber E E above the floor and beneath the front of the grate, as shown in Fig. 3, passing beneath the ash-pan D and into the chamber E E, where it becomes heated by the radiation from the grate and from the flues A and B, and passes upward and out into the room beneath the mantel, as shown by the arrows in Fig. 3.

L is the jacket around the air-chamber E E.

J is a rod for opening and closing the damper I.

The air may be let into the air-chamber E at any suitable or convenient point instead of beneath the front of the grate, as shown, and it may be taken from the chamber E E at any desired point, or may be carried from one room to another instead of being taken out into the room.

The partition H could be removed if at any time found desirable, and the smoke would then pass directly from the flue A to the flue B.

The operation of the flues A and B is as follows: When the damper I is turned back from flue A, the smoke and heated gases from the grate pass directly into the chimney M when there is a direct draft. When the damper I closes the top of the flue A, as shown in Fig. 3, the smoke from the combustion-chamber passes into flue A, and thence downward into the chamber C and forward around the tube F, and thence backward into the flue B, and thence into the chimney. In this course much of the heat from the smoke and heated gases will be taken up by the air in chamber E E and conveyed into the room, as above described.

In cases where the grate is not provided with the partition H, the movement of the smoke from flue A to flue B would be more direct, but otherwise the same.

Having thus described my invention, what I claim to have invented, and desire to secure by Letters Patent, is—

1. An open fire-place provided with a grate to receive the fuel, an ash-pan beneath the same, in combination with a casing surrounding said fire-place, flues A B, extending down in rear of the fire-place and horizontally beneath the ash-pan, connecting at the front with a space between such flues and the fire-place, the said flue A connected with the fire-place and the flue B with the uptake, whereby an air-chamber between the fire-place and the casing is formed, and an opening thereto below the ash-pan, substantially as described.

2. An open fire-place provided with a grate

to receive the fuel, in combination with a flue leading from the top of the fire-place back and connecting with an ascending and descending flue, A and B, the descending flue A extending down and running horizontally under the fire-place beneath the ash-pan chamber and below the floor on which the fire-place rests, forming a heating-chamber, C, an air-chamber, E, surrounding the fire-place and the flues, an inlet-passage for the outer air between the said chamber C and the ash-pan, an outlet-passage for hot air leading from chamber E into the room to be heated, and a suitable damper for admitting the products of combustion directly to the chimney or turning them down into the flues around the fire-place, substantially as described.

3. The combination, in a fire-place stove, of an open grate surrounded by an air-chamber, a heating-chamber, C, having a partition, H, inlet-flue A, and outlet-flue B, a damper, I, in said flue A, and an ash-pan, D, under said grate, and a tube, F, extending downward through said heating-chamber, all arranged and adapted to operate as described.

ALLAN T. BENNETT.

Witnesses:
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