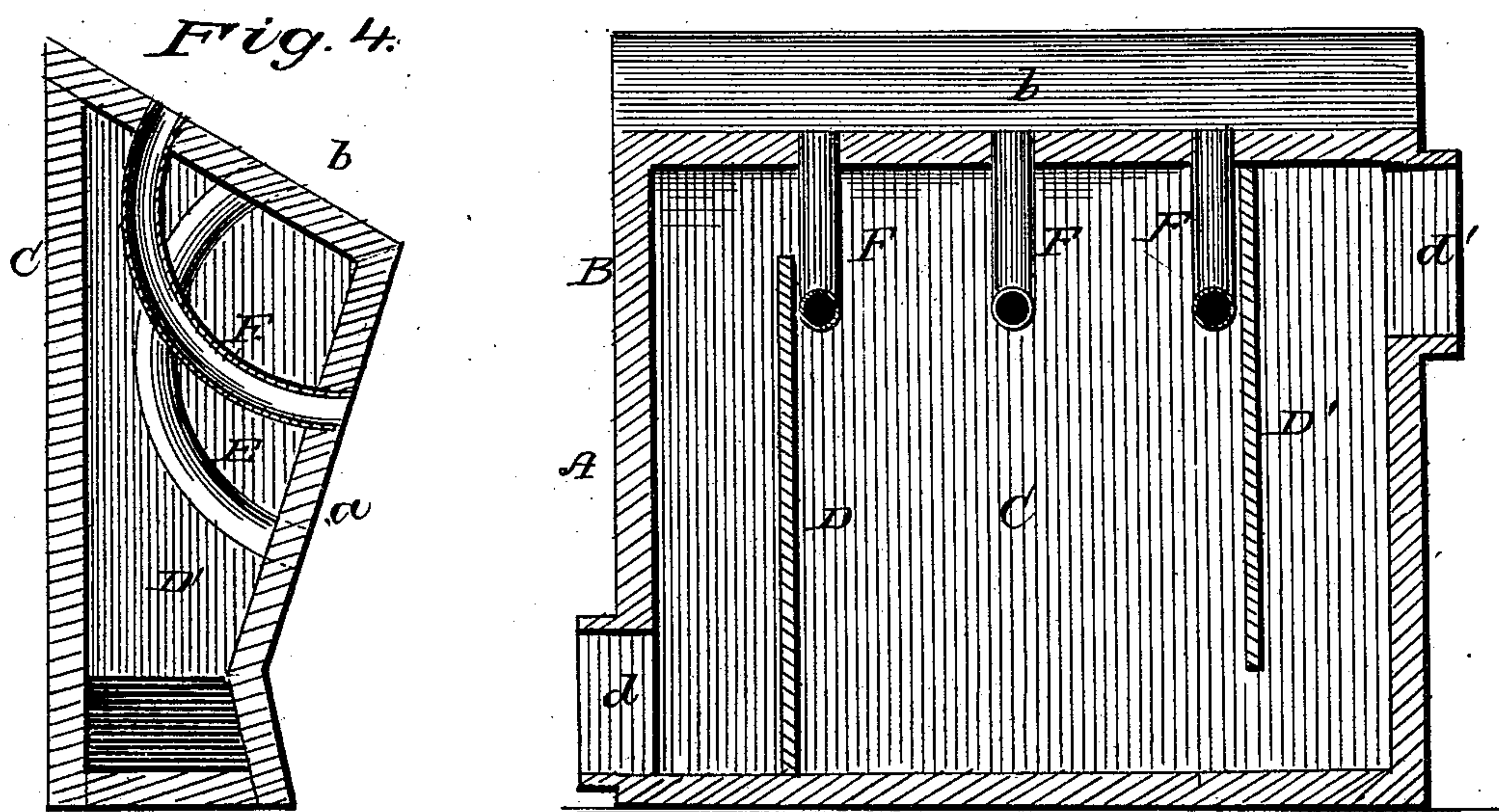
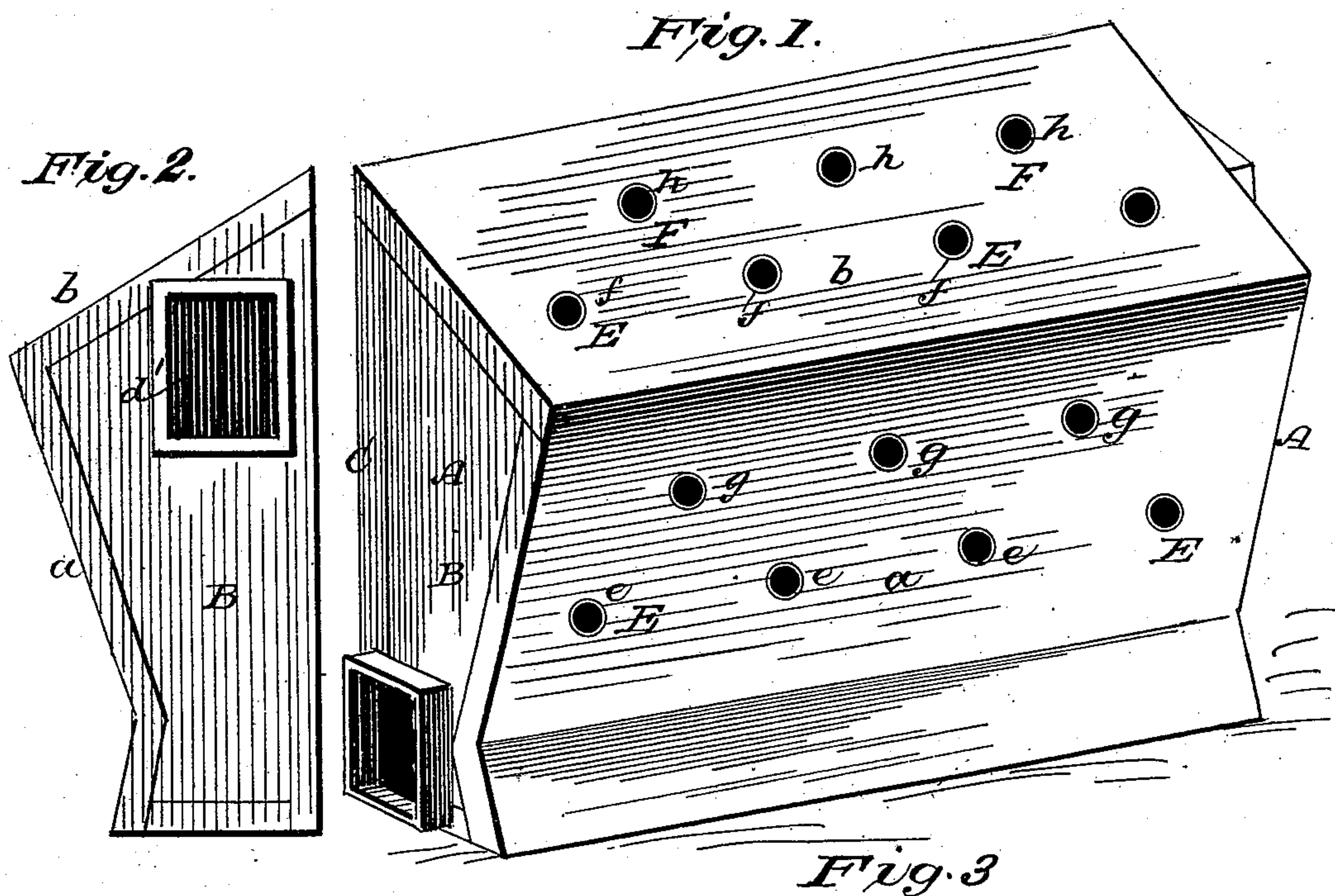


R. & J. LOGAN.  
Fire-Place Heater.

No. 227,171.

Patented May 4, 1880.



Witnesses  
Fred. G. Dietrich  
Albert H. Krause

Inventors.  
Robert Logan & John Logan  
by Louis Baggett &  
Attorneys



# UNITED STATES PATENT OFFICE.

ROBERT LOGAN AND JOHN LOGAN, OF McKEESPORT, PENNSYLVANIA.

## FIRE-PLACE HEATER.

SPECIFICATION forming part of Letters Patent No. 227,171, dated May 4, 1880.

Application filed February 24, 1880.

*To all whom it may concern :*

Be it known that we, ROBERT LOGAN and JOHN LOGAN, of McKeesport, in the county of Allegheny and State of Pennsylvania, have  
5 invented certain new and useful Improvements in Open Fire-Place Heaters; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-  
10 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view. Fig. 2 is a  
15 side or end elevation. Fig. 3 is a longitudinal vertical section, and Fig. 4 is a transverse vertical section.

Similar letters of reference indicate corresponding parts in all the figures.

20 Our invention has relation to open fire-place heaters such as are used with open grates; and it consists in the construction of an improved back for the same, which forms a hollow air-chamber, provided with a system of  
25 flues for conducting the products of combustion through said chamber, and with diaphragms or transverse partitions for deflecting and obstructing the current of air entering the said hollow chamber to be heated, substantially as hereinafter more fully set forth.

30 In the drawings, A is the fire-back, which is made of cast-iron, hollow, with an outwardly-flaring front or face, *a*, and inclined top, *b*, facing the "gathering" or throat of the flue, and a straight back, C. The sides B B of this  
35 hollow casting are made (preferably) perpendicular, and are provided with registers or openings *d d'*, one of which, on one side, is near the bottom, and the other, on the opposite side, near the top, of the hollow fire-back.  
40

D D' are two partitions, one of which, D, facing the inlet *d*, extends from the bottom of the chamber up to within about six inches from the top, while the opposite diaphragm, D',  
45 which is placed in the opposite end of the chamber facing the outlet *d'*, extends from the top downward to within about six inches from the bottom. These partitions or diaphragms check the direct draft or current of air

between the inlet *d* and outlet *d'*, retarding its  
50 progress through the hollow fire-back.

Inserted into this back, either during the process of casting or afterward, are two sets of curved tubes or flues, denoted, respectively, by the letters E and F. The lowermost set  
55 or series, E, open out into the face-plate at *e e*, and into the inclined top at *f f*, while the second set or series, F, alternating with the flues of the lower set, E, have their mouths or openings at *g h* respectively, thus crossing the in-  
60 termediate alternating flues E, as shown more clearly in Fig. 4 of the drawings.

The hollow back being built into the fire-place in the usual manner, it is clear that a  
65 certain part or portion of the products of combustion, instead of ascending directly into the throat of the flue above, will be drawn through the curved flues E F, thus heating the air contained in the chamber within the casing or  
70 hollow fire-back A. Cold air is fed into this chamber through the lower inlet, *d*, on one side, and escapes as warm or heated air from the outlet *d'* in the opposite corner, either into the same room in which the heater is placed,  
75 or it may be conducted, through a communicating hot-air flue provided with a suitable register or registers, to a room or rooms located in other parts of the house.

Having thus described our invention, we claim and desire to secure by Letters Patent  
80 of the United States—

A hollow fire-back, A, having an inlet, *d*, and outlet *d'* in diagonally-opposite corners, and provided with the deflecting and retarding diaphragms D D' and two or more rows of curved  
85 flues, E F, arranged in their respective rows or series in relation to the fire-back or casing, into which they are inserted to alternate with each other, substantially in the manner and for the purpose herein shown and specified.  
90

In testimony that we claim the foregoing we have hereunto set our hands.

ROBERT LOGAN.  
JOHN LOGAN.

Witnesses :

W. M. GORMLY,  
GEO. F. TURNER.