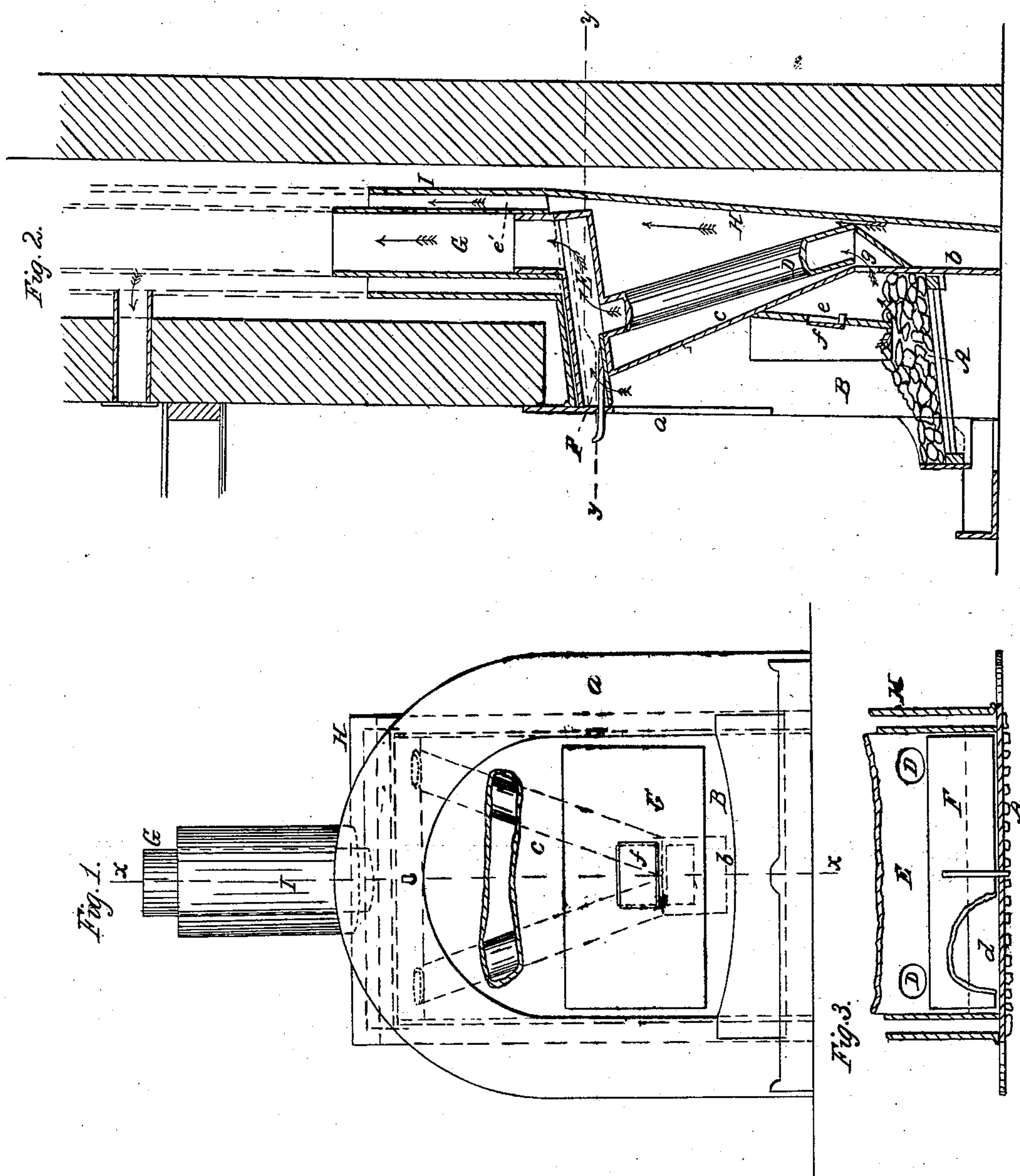


A. CARSON.  
Fireplace Stove.

No. 42,074.

Patented March 29, 1864.



Witnesses:  
*Thos D. Douglas*  
*Geo W. Reed*

Inventor:  
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# UNITED STATES PATENT OFFICE.

ALFRED CARSON, OF NEW YORK, N. Y.

## IMPROVEMENT IN FIRE-PLACE STOVES.

Specification forming part of Letters Patent No. 42,074, dated March 29, 1864.

*To all whom it may concern:*

Be it known that I, ALFRED CARSON, of the city, county, and State of New York, have invented certain new and useful Improvements in Grates; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a front elevation of my invention; Fig. 2, a vertical central section of the same, taken in the line *x x*, Fig. 1; Fig. 3, a horizontal section of the same, taken in the line *y y*, Fig. 2.

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

This invention relates to certain improvements in grates such as are fitted in a fire-place and have only their front exposed.

The object of the invention is to obtain a grate of the kind specified which will radiate the heat into the room or apartment, and at the same time serve as an air-heating device for warming apartments above that in which the grate is placed, all being so arranged as to economize in heat by preventing the same from escaping with the products of combustion up the chimney or flue.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the grate, which is fitted in a slightly-inclined position in a chamber, B, the front part of which has a flange, *a*, to form the exposed front, as shown clearly in Fig. 1. The back part of the chamber B at its lower part, *b*, is of semicircular form, and the upper part, *c*, is inclined, (see Fig. 2,) so as to leave a narrow throat, *d*, at the upper end of B, said throat extending the whole width of the grate in consequence of the sides of the chamber B being parallel with each other at their front ends adjoining the flange *a*.

C is a vertical plate, which depends from the inclined upper part, *c*, of the back of the chamber B and downward into the fire-chamber some distance in front of the back of the chamber B, as shown clearly in Fig. 2. In this pendent plate C there is an opening, *e*, provided with a door or valve, *f*, and in the back of the chamber B, just above the level of the lower end of the plate C, there is an opening, *g*, with which two pipes, D D, com-

municate, said pipes extending upward at the back of B, diverging from each other and communicating at their upper ends with a box, E, the length of which is equal to the width of B.

The throat *d* forms a direct communication between the upper part of the chamber B and the box E, and in the latter there is placed a sliding damper, F, so arranged that when it is shoved back to open the throat *d* it will close the upper ends of the pipes D D, and when the upper ends of the latter are exposed, so as to communicate with the box E, the throat *d* will be closed.

G is the smoke-pipe, which communicates with the box E and extends upward in the chimney or flue.

H represents a jacket, which is placed behind the back of the chamber B. This jacket may be of semicircular form at its lower end and of square form at its upper end, corresponding to the shape of the box E, and it has a pipe, I, at its upper end, which encompasses the smoke-pipe G, I being sufficiently larger in diameter than G to admit of a suitable space, *e'*, being between them for the passage of the heated air. (See Fig. 2.) The space within the jacket H receives cold air, which is admitted at its lower end either from the exterior of the building or from an apartment underneath.

The operation is as follows: When a direct or strong draft is required, the damper F is shoved back, so as to open the throat *d* and close the pipes D D. When a direct draft is not required, the damper F is drawn forward, the throat *d* closed, and the upper ends of the pipes D D opened, so that they may communicate with the box E. By closing the door or valve *f* of the opening *e* in the plate C the air which supplies the fire with oxygen will pass over the top of the fuel and down through it underneath plate C and through the opening *g* into the pipes D D, passing with the products of combustion up through said pipes into the box E, and thence into the smoke-pipe G, as indicated by the black arrows.

By this arrangement the air is warmed as it passes into the pipes D D, and the air within the jacket H is heated in consequence of the pipes D and box E radiating heat within said jacket. This heated air extends up around

the smoke-pipe G within the pipe I, and absorbs the heat from G, so that no appreciable amount of heat is carried off by said pipe.

By having the pipes D arranged in the form of a fork a long box, E, is obtained and a large heat-radiating surface, and by having the back of the chamber B of an equal width its entire height a long throat, *d*, and box, E, is obtained equal in length to the width of the chamber B. The opening *e* admits of fuel being placed in the grate behind the plate C, and also admits, when the door or valve *f* is open, of a direct draft into the pipes D D.

Having thus described my invention, what

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

1. The pendent plate C in the fire-chamber, arranged relatively with draft-passages, substantially as shown and for the purpose specified.

2. In combination with the pendent plate C, the pipes D, damper F, box E, all arranged substantially as and for the purpose herein set forth.

ALFRED CARSON.

Witnesses:

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GEO. W. REED.