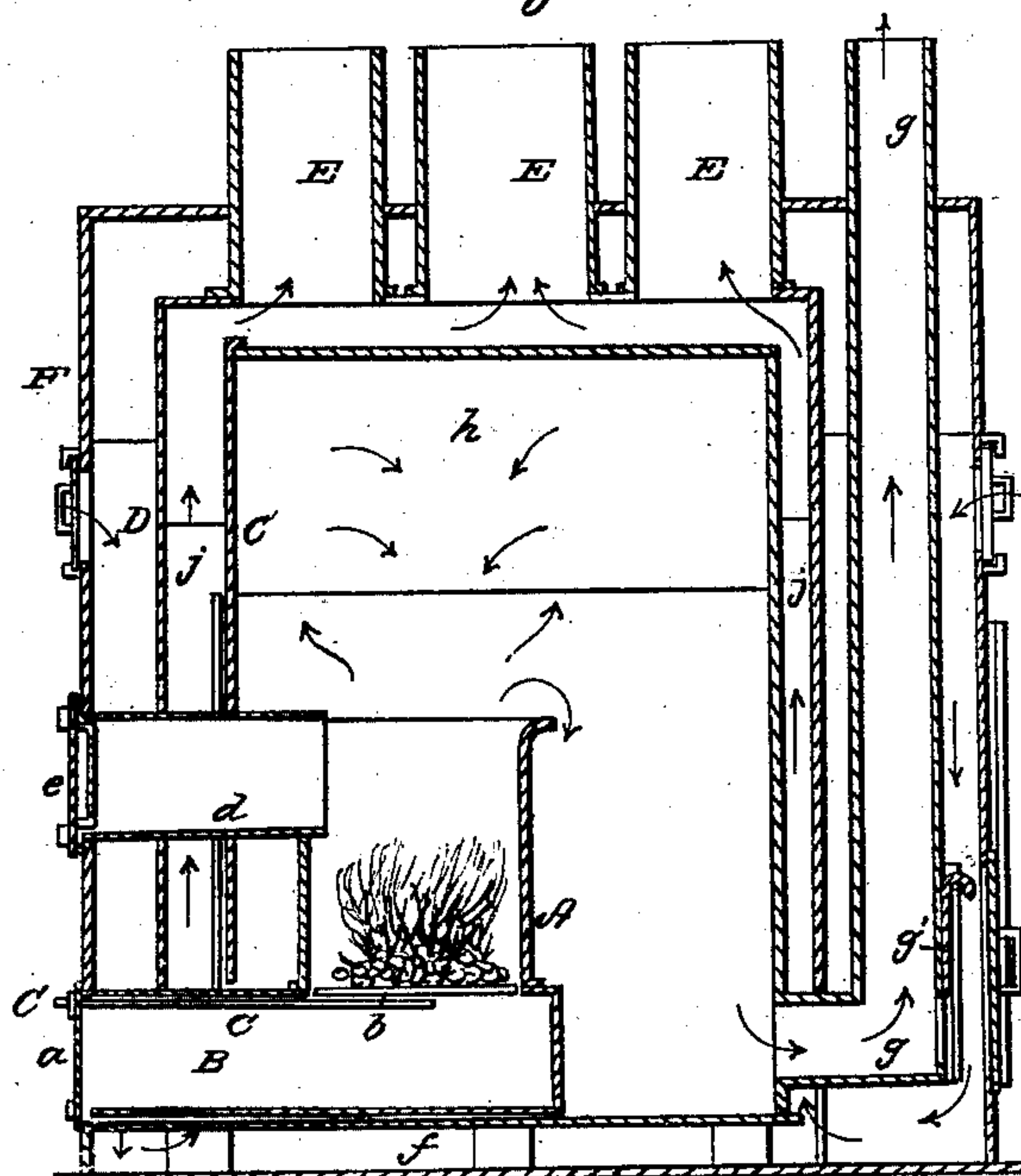
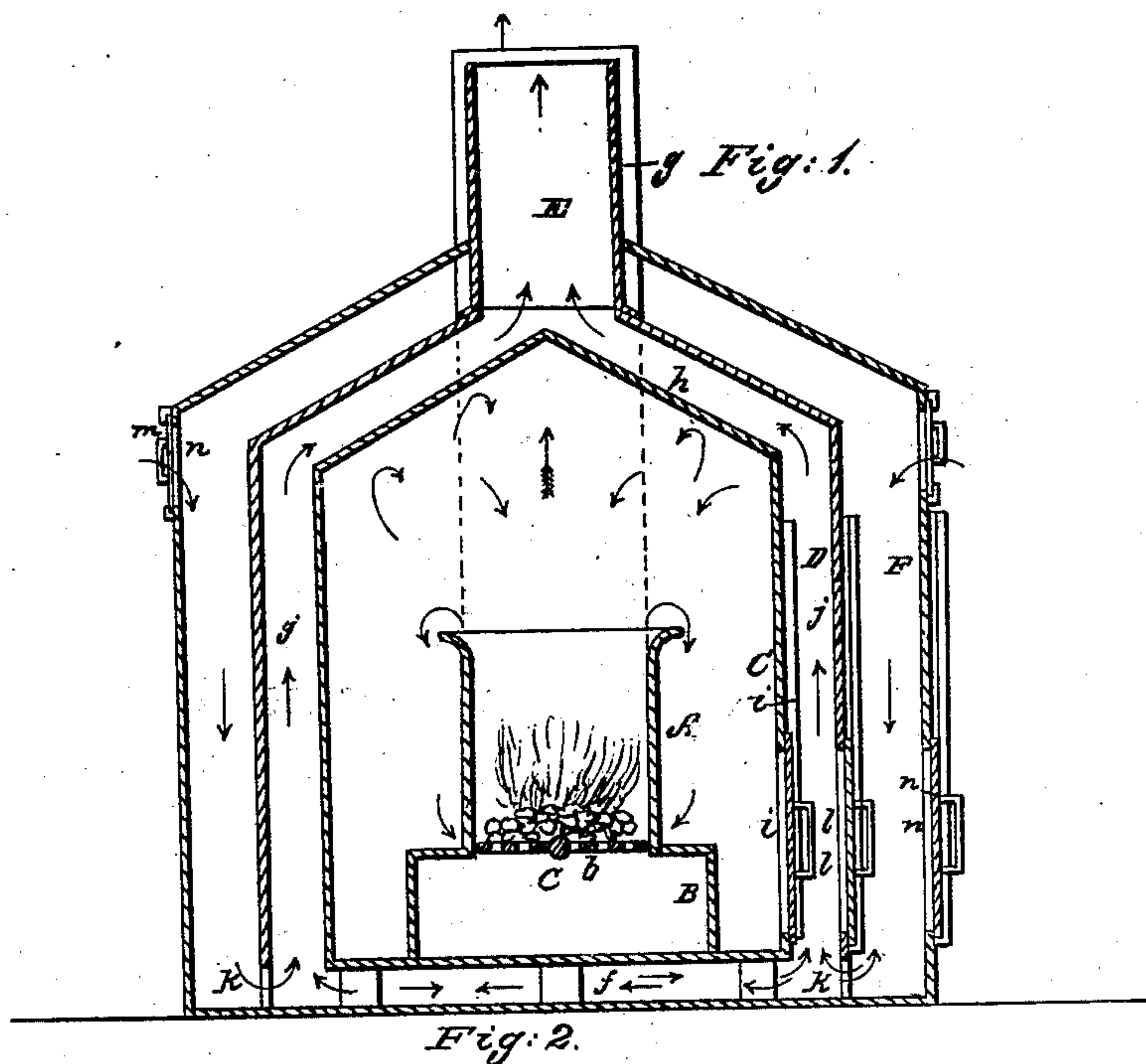


G. MARLOW.
Heating Apparatus.

No. 29,983.

Patented Sept. 11, 1860.



Witnesses:

J. W. Coombs
C. Hughes.

Inventor:

George Marlow
per Munn & Co
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE MARLOW, OF CINCINNATI, OHIO.

APPARATUS FOR HEATING BUILDINGS.

Specification of Letters Patent No. 29,983, dated September 11, 1860.

To all whom it may concern:

Be it known that I, GEORGE MARLOW, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and Improved Apparatus for Heating Buildings, &c.; 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, forming a part of this specification, in which—

Figure 1 represents a transverse vertical section of my invention. Fig. 2 is a longitudinal vertical section of the same, taken in a plane at right angles to the plane of section in Fig. 1.

Similar letters of reference indicate corresponding parts in both figures.

To enable those skilled in the art to make and use my invention I will proceed to describe its construction and operation with reference to the drawing.

The fire pot A, is made of cast iron or of any other suitable material, and it is arranged on the top of the ash pit B, which extends through the several casings, being closed on the outside by a door *a*. The bottom of the fire pot is formed by a grate *b*, which turns on an axle *c*, and this axle extends to the outside of the outer casing so that said grate can be turned up by means of a suitable handle. The fuel is introduced to the fire pot through a passage *d*, which is closed by a door *e*.

C, is the heater which surrounds the fire pot being constructed of sheet metal and sufficiently large to prevent its sides becoming overheated. The bottom of this heater is elevated above the bottom of the apartment in which the apparatus is erected leaving a passage *f*, for the air and a pipe *g*, which emanates from the rear end of the heater close down to its bottom, serves to conduct the smoke off to the chimney. The top *h*, of the heater is made sloping as clearly shown in Fig. 1, and the smoke as it rises from the firepot by striking the sloping surface of the roof is turned down into the fire so that all the combustible products contained in the smoke are consumed before it is allowed to reach the smoke pipe *g*. The draft is regulated by a damper *g'*, in the lower end of the smoke pipe. A man-hole *i*, closed when not wanted, by a door *i'*, that slides up and down in guides *i**, gives access to the heater.

The heater C, is surrounded by the ra-

diator D, which sits down close to the bottom of the apartment in which the apparatus is erected. A passage *j*, between the heater and the radiator leads to the hot air flues E, which serves to carry the heated air up into the building. The bottom of the radiator D, is perforated with openings *k*, to admit the cold air and its top is sloping to correspond to the roof of the heater so as to allow the air to pass freely up into the hot air flues E. A man-hole *l*, covered by a door *l'*, when not needed, gives access to the radiator.

A casing F, of sheet metal cast iron or of brick surrounds the radiator and openings *m*, on the top edge of this casing, admits the cold air to the apparatus. These openings can be closed or regulated by means of sliding doors *m'*, and a manhole, *n*, closed by a door *n'*, when not needed gives access to the interior of the casing. The top of the casing is perforated with the necessary number of openings to let the smoke pipe and the hot air flues pass.

The operation is as follows: To know if the fire pot and the grate are ready for use, the attendant opens the manhole doors *i*, *l*, and *n*, and goes in. If he finds everything in order he comes out closing the manhole doors after him. He now opens the door *e*, and introduces the fire kindling and the fuel through it and the passage *d*, into the fire pot lights the fire and regulates the air for combustion by the ash pit door *a*. The cold air apertures *m*, which, when the apparatus is not in use, are usually closed, are now opened to the needful extent and the damper *g'*, of the smoke pipe is properly adjusted. The cold air coming in travels down the outside of the radiator D, to the openings *k*, near to its bottom taking what heat it can, and it passes into these apertures and under and around the heater C, and over its top, being compelled in its ascent to the education flues E, to pass the sides of the heater, thus absorbing nearly all the heat that is generated.

This apparatus can be got up very cheap and light and it gives entire satisfaction in its operation.

By the particular construction of my apparatus I am enabled to use with advantage wrought instead of cast iron. Since wrought iron is a better conductor and can be used so much thinner than cast iron its advantages in saving fuel and warming up apart-

ments rapidly have long been appreciated, but its strong objection to its use for heating or radiating surfaces has been its liability to speedy destruction unless made
5 expensively thick. This objection has been entirely removed by my apparatus by placing the fire pot at a sufficient distance from the sides of the chamber to prevent their becoming excessively heated. By this very
10 simple device a very ample area of heating surface is secured and kept at such a moderate temperature that the elements of the decomposed gases are not liable to attack and corrode it nor does it carbonize the im-
15 palpable dust in the air that is warmed so as to give it a burned smell as in wrought iron heaters heretofore in use. Not only so but what I consider as the novelty of my invention is that by suitably expanding my

fire chamber I can so reduce the temperature 20 of its surface to any desired point, for example to 212° F., and thereby secure all the advantages of that mild heat claimed for water and steam heating apparatus, without
25 any of their countervailing disadvantages of complication and expense in erection and management.

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

The arrangement of the fire pot A, ash 30 pit B, sloping topped heater C, and escape pipe *g*, with the radiator D, air flues E, E, E, and cold air casing F, as and for the purpose herein shown and described.

GEORGE MARLOW.

Witnesses:

JOHN I. McFALL,

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