

C. B. GREGORY.

Fireplace.

No. 76,750.

Patented April 14, 1868.

Fig. 1.

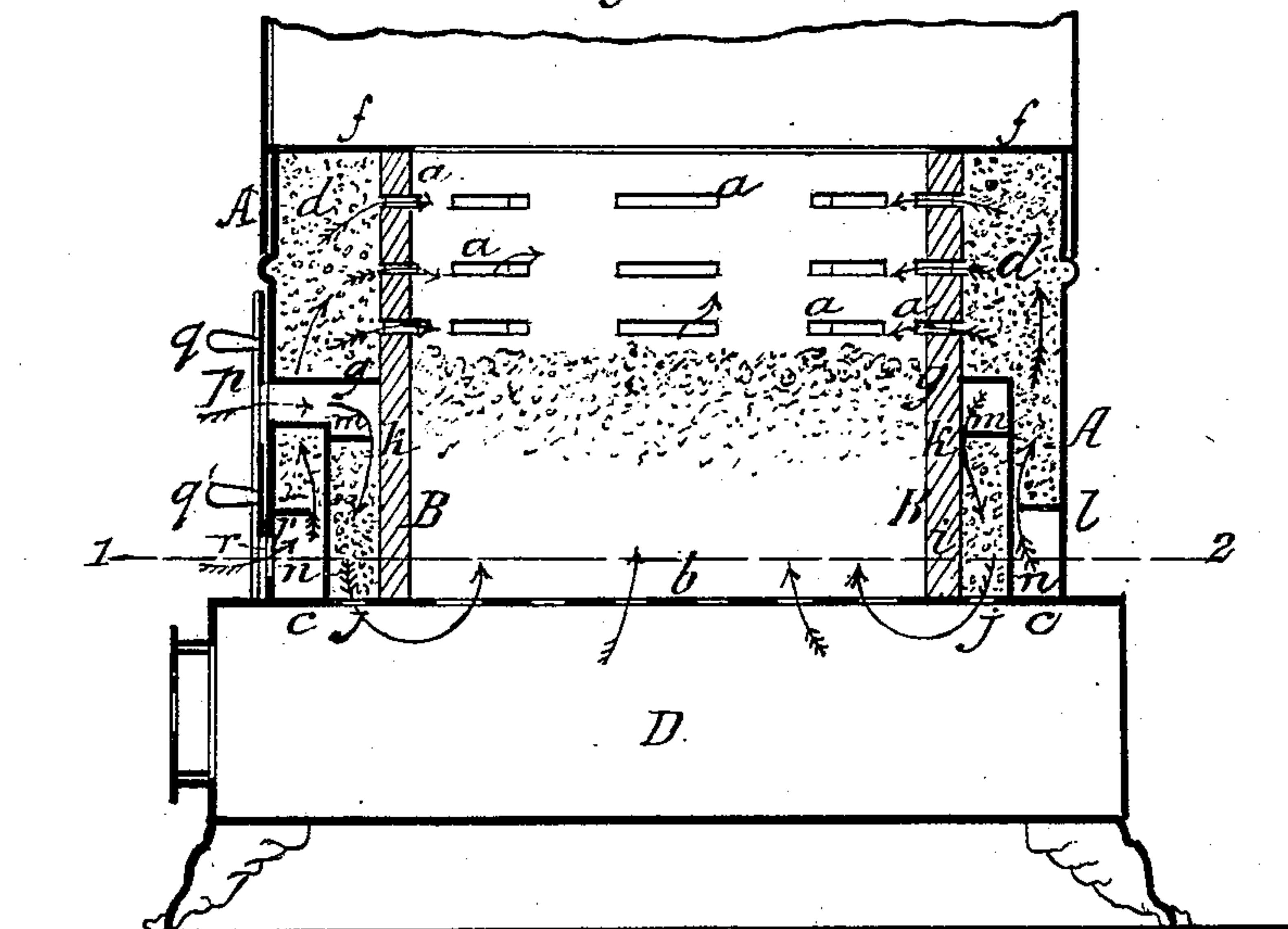
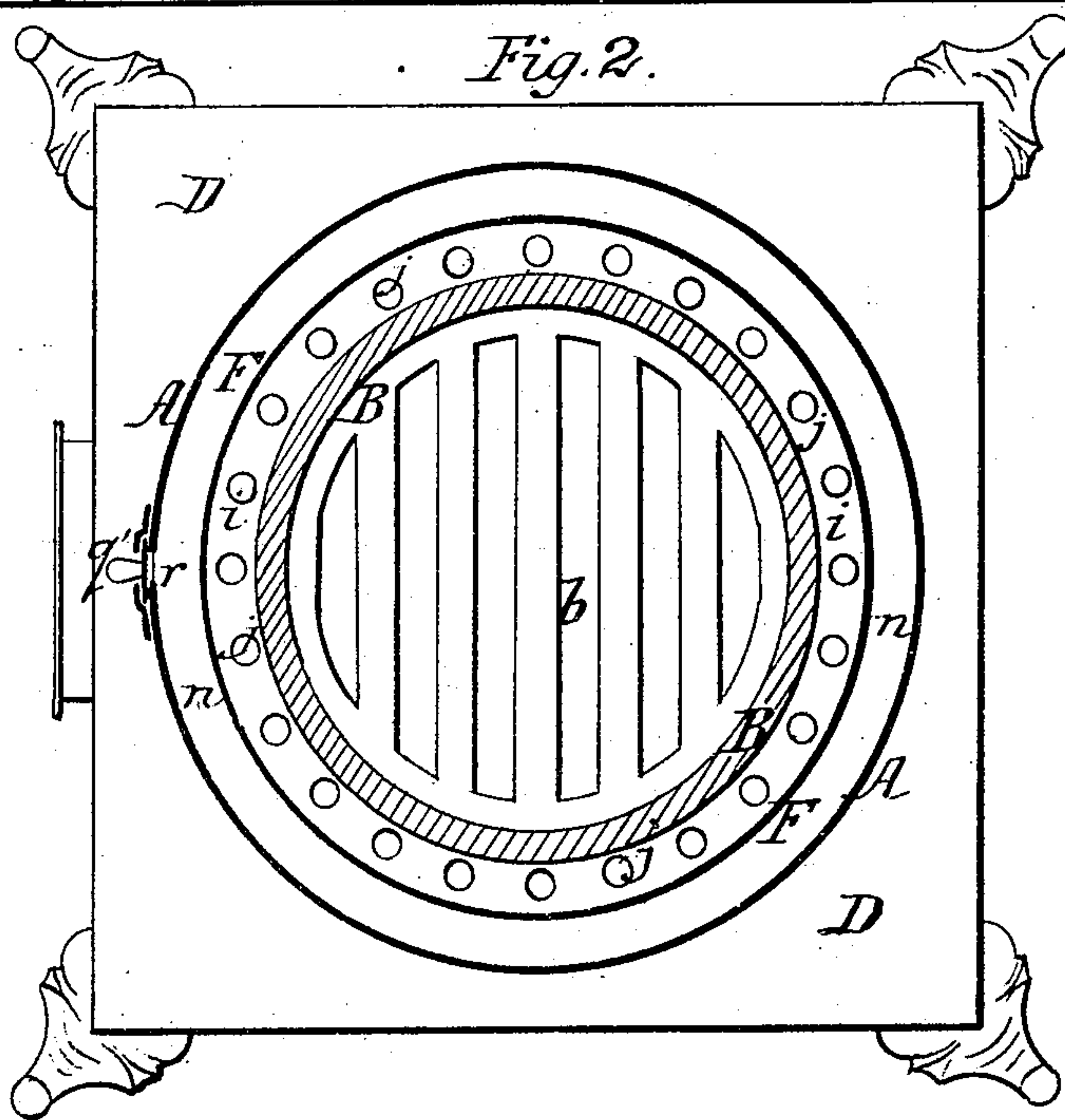


Fig. 2.



Witnesses
Wm. Albert Steel
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C. B. GREGORY, OF BEVERLY, NEW JERSEY.

Letters Patent No. 76,750, dated April 14, 1868.

IMPROVEMENT IN FIREPLACES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, C. B. GREGORY, of Beverly, Burlington county, State of New Jersey, have invented certain Improvements in Fireplaces; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists of certain improvements, fully described hereafter, in the fireplace for which Letters Patent were allowed to me on the 28th day of December, 1867, the said improvements effecting such a thorough circulation of the air for supporting combustion, that an intense and uniform heat is obtained.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a vertical section of my improvement applied to a stove, and

Figure 2 a sectional plan view on the line 1 2, fig. 1.

A represents the outer casing, *b* the grate, *c* the bottom-plate, and D the ash-box of a stove.

The hollow cylinder or fire-pot, B, of the stove, which rests upon the bottom-plate *c*, may be made of cast iron or fire-clay, and is perforated near its upper end with openings or slits *a*, for a purpose described hereafter, and the annular space *d*, between this cylinder and the outer casing of the stove, is covered at the top by a plate or flange, *f*, fig. 1.

Within the annular space *d* is a short cylindrical casing, F, which also rests upon and is secured to the base-plate *c* of the stove, and has, at its upper end, a flange, *g*, in contact with the fire-pot B, a smaller annular space, *i*, being thus enclosed, which communicates with the ash-box D, through a number of perforations, *j*, in the base-plate.

Near to the upper end of the cylinder F is a flange, *k*, which projects towards but is not quite in contact with the fire-pot B, and a similar flange, *l*, on the outer casing A of the stove projects towards the cylinder F, two annular air-chambers, *m* and *n*, being thus formed.

Air is admitted to the chamber *m* through a tube, *p*, and to the chamber *n* through an opening, *r*, in the casing A, both the tube and opening being opened or closed at pleasure, by means of sliding dampers *q* and *q'*, as shown in fig. 1.

The annular space *d*, between the outer casing A and cylinder B, and above the flange *l*, is filled with gravel, granulated bricks, iron-turnings, or other equivalent granulated material, which cannot be readily affected by the heat, and in the mass of which are numerous interstices for the passage of air.

The space *i*, below the flange *k*, is also filled with granulated material, in the same manner as the space *d*.

On first igniting the fuel within the stove, the air necessary to the support of combustion is admitted, through the tube *p*, into the air-chamber *m*, where it freely circulates around the cylinder B. From the chamber *m* the air passes downwards, through the interstices of the granulated material contained in the space *i*, thence through the perforations *j*, and upwards, through the grate *b*, to the fire, as clearly indicated by the arrows, fig. 1.

The damper *q'* may then be opened, and air admitted to the chamber *n*, where, after freely circulating, it passes upwards, as shown by the arrows, through the granulated material contained in the space *d*, and thence, through the openings or slits *a* in the upper part of the cylinder B, into the fireplace, where it combines with the inflammable gases which rise from the ignited fuel.

In the fireplace for which the above-mentioned Letters Patent were allowed to me, air was admitted at two points, and caused to pass through granulated material, as in the present instance, but the circulation of air was somewhat imperfect. This defect I have remedied by employing the air-chambers *m* and *n*, in which, as above described, the air is caused to circulate before passing through the granulated material. I have found, by repeated experiments, that the result of this thorough circulation of the air is a fire of intense and uniform heat, and the entire consumption of the fuel.

Although I have described my invention as applied to a stove, it will be evident that it may be used in connection with heating-furnaces, furnaces for steam-boilers, and, in fact, in any case in which an intense heat is required, the form of the several casings and chambers being modified accordingly.

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

The air-chambers *m* and *n*, situated between the inner perforated casing B and outer casing A of a fireplace, and communicating with chambers containing gravel or other suitable granulated material, through which the air must pass prior to entering the fire-pot, all substantially as and for the purpose herein set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

C. B. GREGORY.

Witnesses:

JOHN WHITE,
C. B. PRICE.