W. H. WHITEHEAD.

Gas-Burning Coal-Stove.

No. 81,043. Patented Aug. 11, 1868.

Fig. 3.

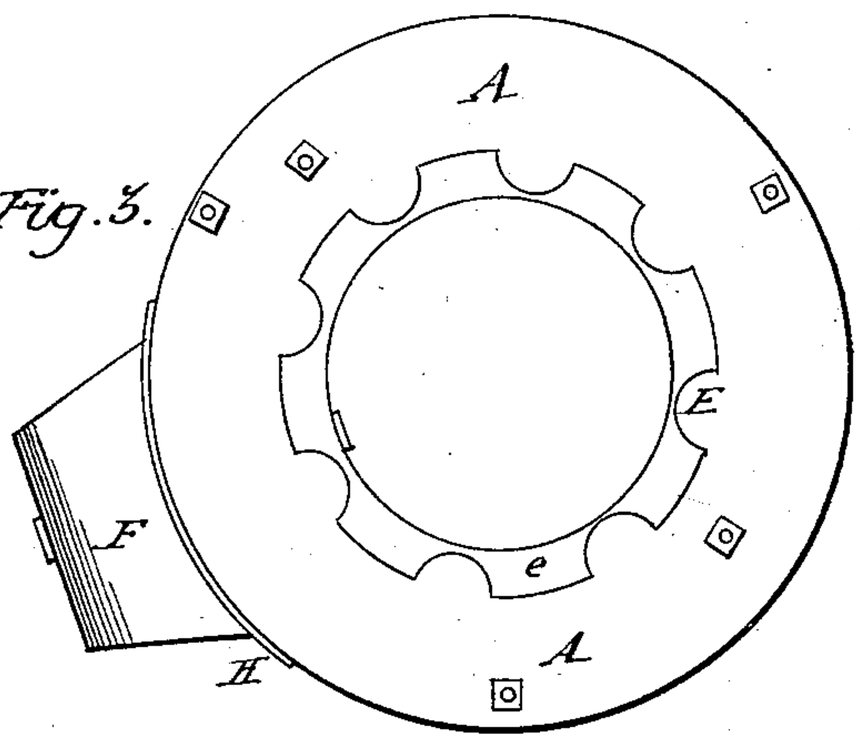


Fig. 2.

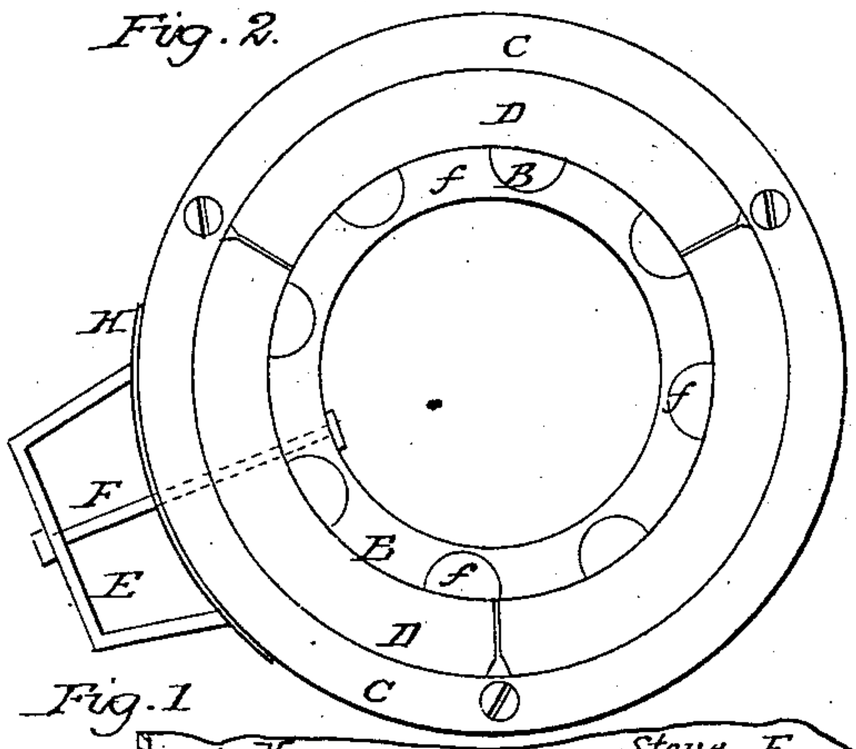
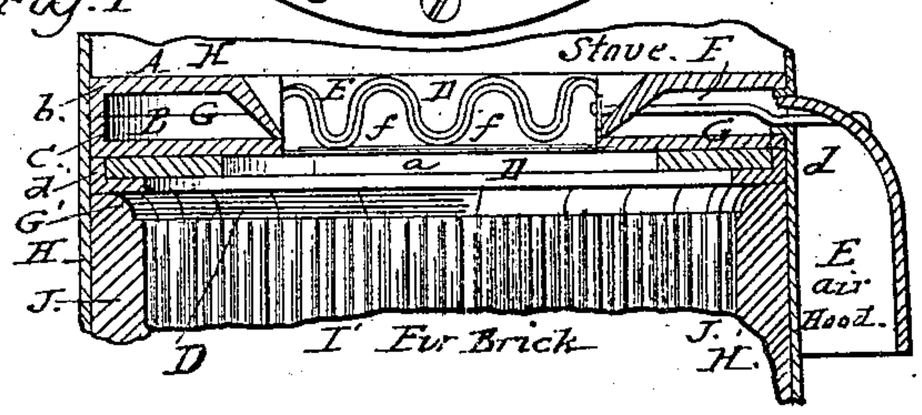


Fig. 1



WITNESSES:

E. T. Bond
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INVENTOR:

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United States Patent Office.

WILLIAM H. WHITEHEAD, OF CHICAGO, ILLINOIS.

Letters Patent No. 81,043, *dated August* 11, 1868.

IMPROVEMENT IN COMBUSTION-CHAMBER IN COAL-STOVES.

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, WILLIAM H. WHITEHEAD, of the city of Chicago, in the county of Cook, and State of Illinois, have invented certain new and useful Improvements in Gas-Burners for Stoves; 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 represents a vertical section in a cylindrical stove.

Figure 2 a reverse view, and

Figure 3 a top or plan view.

Like letters refer to the same parts in all of the figures.

The nature of my invention consists in a novel mode of constructing an interior chamber for supplying atmospheric air in a continuous or unbroken sheet, and at different angles and altitudes, and in providing the under side with a lining of fire-clay or brick, or other suitable substance, to protect the burner from the ascending heat.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

The air-chamber G is made circular, oval, or in any other form, in order to fit the shell, case, or fire-chamber of the stove or furnace H, to which it is to be applied. In the form shown, the plates A and B are made in annular rings or disks about two and one-half inches in width, and of a diameter sufficient to fit the fire-chamber I. The upper plate or disk has an exterior flange, *b*, turning downwards about three-eighths of an inch, and an interior bevelled and corrugated or serrated flange, *e*, projecting inwards and downwards, as shown.

The plate B is similarly constructed and inverted. When closely fitting the shell H, the flanges *b* and *c* may be cut away so as to leave supports only. When placed together and fastened, an annular space, G, extending equally all of the way around, is formed by the union of the right-angled flanges *b* and *c*, and the near approach to each other of the bevelled corrugated projections *e* and *f*. The two plates or disks A and B are so formed that when the flanges *b* and *c* are brought together, a small space, *a*, which is about one-sixteenth of an inch in width, is left for the flow of air from the space G into the gaseous products of combustion.

It will be seen that this space *a* is wavy or frequently curved from one disk to the other. The object of this is twofold: first, to introduce the air in a continuous sheet so that no part shall escape coming in contact with the air; and second, to increase the line of its admission, so as to inject a sufficient quantity of air to insure the combustion of the gaseous products of the coal, and at different altitudes and angles, so that it will be commingled with the gases sufficiently to insure perfect combustion before leaving the stove. The several curves give the air-currents a variety of directions, some with a downward and some with an upward inclination, and a large portion horizontally at different heights, which produces a thorough intermingling of air without introducing an injurious quantity. Air is admitted into the space G through an opening in the shell or case H of the stove or furnace, and through a similar opening through the flanges *b* and *c*. This opening is covered by a pipe or hood, E, which is attached by the rod or bolt F, or by other suitable means. In order to protect this burner from the heat below, I attach an additional disk or plate, C, which is provided with a flange, *d*. This plate or disk C only extends inwards far enough to cover and be protected by the top of the fire-chamber or fire-brick J, or the usual fire-brick or iron linings. Between the plates B and C, I insert annular sections made of fire-brick, soapstone, or other suitable material, which project inwards sufficiently far to protect the under plate B of the air-chamber, and as far as the plates are carried inwards horizontally, as shown at fig. 2. This ring D can be made in as many sections as desired. Three will usually be sufficient. This gas-burner is placed on the top of any ordinary fire-chamber, such as are usually found in coal-stoves or furnaces, and for a cook-stove it will only need to be placed at the back of the fire-chamber, at the top of the back lining. This air-chamber materially controls the opening above the fire, so as to concentrate the unconsumed products of the combustion below, and, by the admixture of air with the escaping gases, consume the carbon of the coals to a great extent, and it does not interfere with feeding in the coal as when points or projections are used with the air-chamber, to introduce air centrally. The curved projections will prevent the warping of the plates to

any serious extent, and if at any time the space *a* should become too far closed, the plates can be wedged apart by loosening the screws and inserting a nail or scrap of iron between the plates.

I do not claim, broadly, hollow annular air-chambers, as they have been heretofore used, with small punctures or holes for air-passages, and located above the fire chamber.

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

1. The air-chamber, composed of the plates or disks A and B, provided with the flanges or supports *b* and *c*, and the interior projections *e* and *f*, arranged so as to admit a continuous thin sheet of air, substantially as specified.

2. The application of the fire-brick or protector D to the under surface of the air-chamber, substantially as and for the purposes specified.

3. The combination and arrangement of the plates A, B, and C, with the fire-brick or protector D, substantially as and for the purposes specified.

WILLIAM H. WHITEHEAD.

Witnesses:

L. L. BOND,

E. A. WEST.