H. G. GILES.

Base Burning Stove.

No. 101,000. Patented March 22, 1870.

Fig. 1.

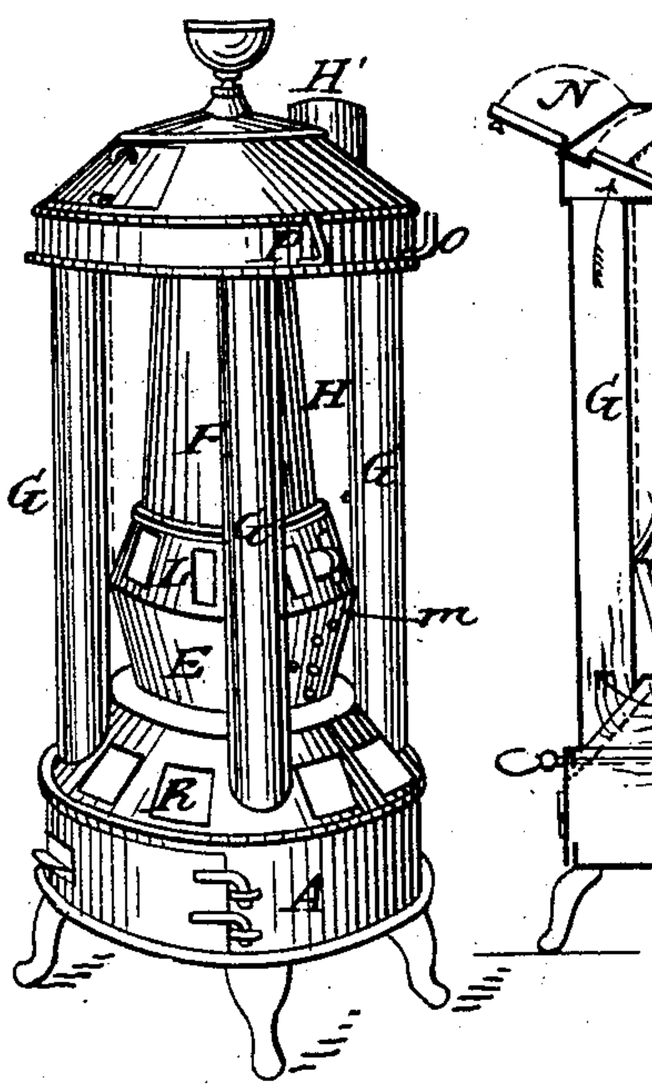


Fig. 3.

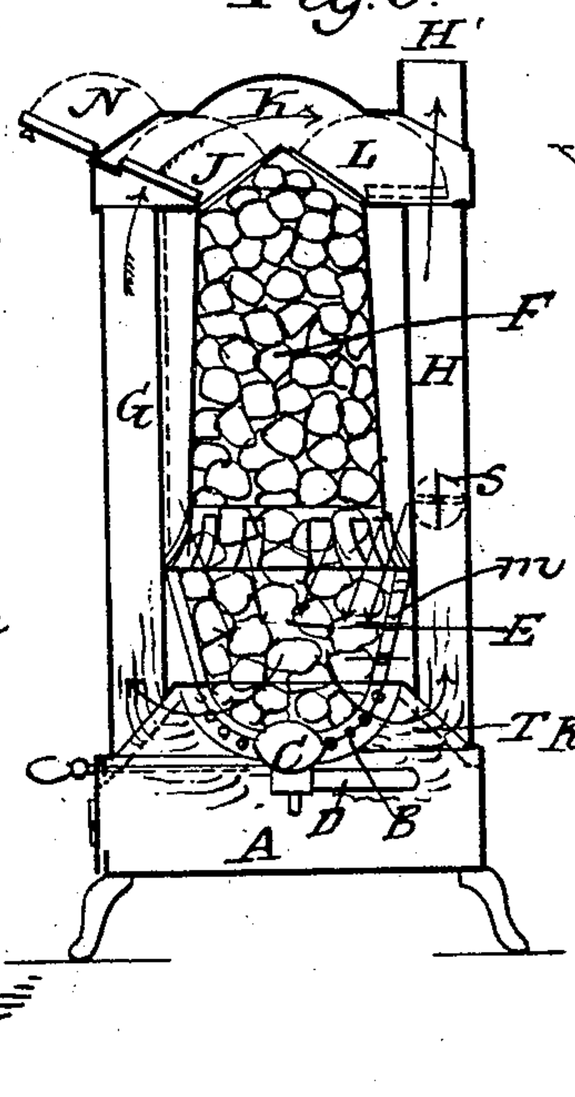


Fig. 2.

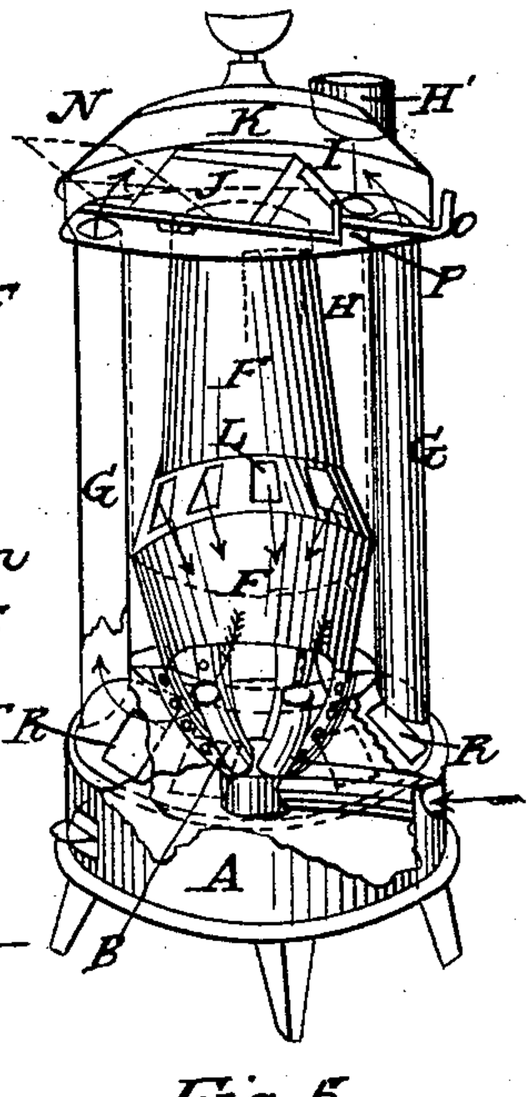


Fig. 4.

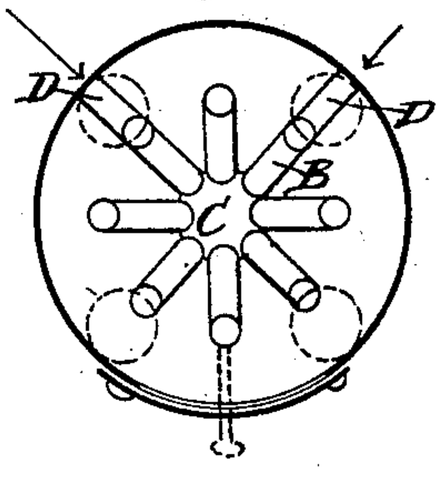
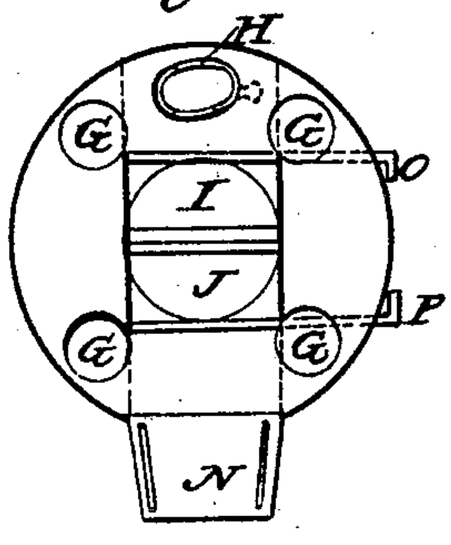


Fig. 5.



Witnesses:

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United States Patent Office.

HENRY G. GILES, OF TROY, NEW YORK.

Letters Patent No. 101,000, *dated March* 22, 1870.

BASE-BURNING STOVE.

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, HENRY G. GILES, of Troy, in the county of Rensselaer and State of New York, have invented new and useful Improvements in Coal-Stoves; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and lettering thereon.

Figure 1 is a perspective view of the stove.

Figure 2 is a perspective view of the interior of stove.

Figure 3 is a vertical section of the whole stove.

Figure 4 is a view of the bottom with grate and air-passages D D.

Figure 5 is a view of the lower portion of the top of stove.

The need of a stove for burning bituminous coal is greatly felt in all that section of country where that kind of coal is the only fuel produced, and in such a stove three points seem to be important.

First, the control of the combustion.

Second, the consumption of inflammable gases, by which the soot is disposed of, and the great objection to the use of this kind of coal obviated; and

Third, a perpetual fire maintained.

To accomplish these objects, the leading idea of this invention is a self-feeding column of coal, while the base of it is being ignited and consumed, by the admission of air or draught at a point one third from its base upward, (more or less,) and burning by a downward draught, and also of igniting the inflammable gases at or under the base of the fire by the admission of fresh oxygen thereto through the bottom grate, and other air-chambers and apertures for that purpose.

The stove may be made in any convenient form in which the principle of my invention can be applied, but the form and manner of construction represented in fig. 1 is that which seems best adapted to the purpose, which I will now explain by reference to the drawings.

A is the ash-pit and gas-combustion chamber.

B is the grate, the arms of which are made hollow with small holes opening laterally in their sides.

C is a central air-chamber, from which the arms of the grate are started off, as shown in fig. 4.

D D are two tubes open at both ends, and so connected with the central air-chamber C as to communicate with its open space, and at the same time allow the grate to rotate. They start out from under the center of the grate at about right angles, and the outer ends open through the walls of the stove or base, and they are also made serviceable in keeping the grate in its central position while it is being rotated and while being let down for dumping, and when raised to its place.

E is a fire-pot containing the base of the column of coal. It may be made in any convenient form. Its sides may be perforated, more or less, for the purpose of admitting air to the ignited coal or coke.

F is the magazine containing the upper portion of the column of coal. At its base are openings, L, provided with a register to open and close the same.

The red lines made nearly parallel with the sides of the magazine indicate the sides of another and outside cylinder or case, forming a chamber surrounding the magazine. In this case or cylinder a register or damper should be placed, to be used in place of the one represented at the base of the magazine, and for the same purpose. (In my experiments with this stove for ten years past, I have always used this outside casing surrounding the magazine.)

The upper end of the magazine or coal-reservoir has two openings, (not necessarily two, for one may be made to answer, but preferably two,) which are closed or opened by the doors or dampers J and I.

The door J, when open, forms, in connection with the feed-door N, a chute or incline, for conveniently and safely feeding coal into the magazine.

The door I opens an upward draught through the magazine to the exit-pipe H, which is much strengthened by closing the damper S in said pipe.

K is a chamber in the top of the stove in which the upper end of the magazine terminates, and in which its doors open and close. Also into this chamber the flues G G terminate. It is also connected with the exit-pipe H.

G G are flues; (there may be one or more, or the exit-pipe may be used instead thereof;) they are connected at their lower ends with and open into the base of the stove where the grate is located, and at their upper ends with the chamber K.

H is the exit-pipe, which also is connected with the base where the grate is located, and passing upward communicates with the chamber K in a manner to exhaust it of gas, soot, dust in feeding, and by it is connected with the upper end of the magazine, and upward through the magazine by opening the door I.

This pipe H is designed, when the damper S is closed, to exhaust the chamber K, or by opening said damper to exhaust or draw off the smoke, gas, or dust from the base of stove.

The red lines at T T indicate a perforated chamber or chambers for the admission and distribution of air to more perfectly ignite and consume the inflammable gases.

To operate the stove, I open the doors N and J, and through these openings drop my kindlings into the fire-pot; then, having closed said doors, I open the door I and close the damper in the pipe H, and also the register at the base of magazine; by these

means, having established a draught from the fire-pot upward through the magazine, I now ignite the kindlings in the fire-pot, giving draught from front of stove, and when well ignited I fill the fire-pot with coal, and when this is thorougly ignited I fill up the magazine to the top with coal; then change the draught by closing the door I and opening the register at base of magazine and closing front door.

The draught from the top of fire-pot is now downward through the ignited coal, and passing down between the bars or arms of the grate into the base, from whence it is directed upward through the flues G G into the chamber K, and thence through the pipe H to the chimney. As the ignited coal in the fire-pot is consumed, the fresh coal in the magazine settles down into the fire-pot, and is there constantly igniting and thus keeping up a perpetual fire, while the inflammable gases passing down through the burning coal are thereby deprived, in a measure, of their carbon or soot, but more perfectly in being re-ignited by means of fresh oxygen which is brought in through the pipes D D to the central hot-air chamber C, from whence, passing into the hollow bars or prongs of the grate, and thence laterally through the grate-bars into the gas-combustion chamber A, (where the second combustion takes place.) And to this admission of fresh air or oxygen may be added that of other atmospheric chambers and apertures before mentioned, for the same purpose. When the ignited coal becomes coked in the fire-pot, then the openings in the side of the fire-pot become serviceable in admitting air to consume the same from the sides, and by this means preventing the combustion from becoming choked up.

The progress of combustion may be checked at any time by closing the register at the base of the magazine, and a gentle fire maintained for several days without recharging with fuel.

Claims.

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

1. The pipes or flues G, in combination with the ash-pit or base A, magazine F, and the chamber K, said chamber K covering top of magazine F, and connecting with exit-pipe H′.

2. In a stove of the general construction herein described, the chamber C, constructed as described, in combination with the hollow grate-bars B and the pipes D, for the purposes herein set forth.

3. The combination and arrangement of the base A, pipes G, top K, exit-pipe H′, magazine F, fire-pot E with holes *m*, the chamber C, grate-bars B, and pipes D, the whole constructed and operating in the manner and for the purpose as specified.

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Witnesses:

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