

(No Model.)

J. FLANNERY.

STOVE.

No. 263,498.

Patented Aug. 29, 1882.

Fig. 1.

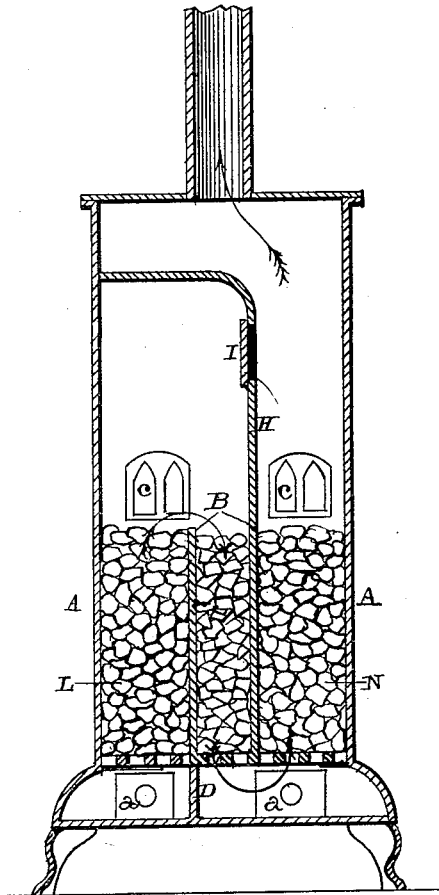


Fig. 2.

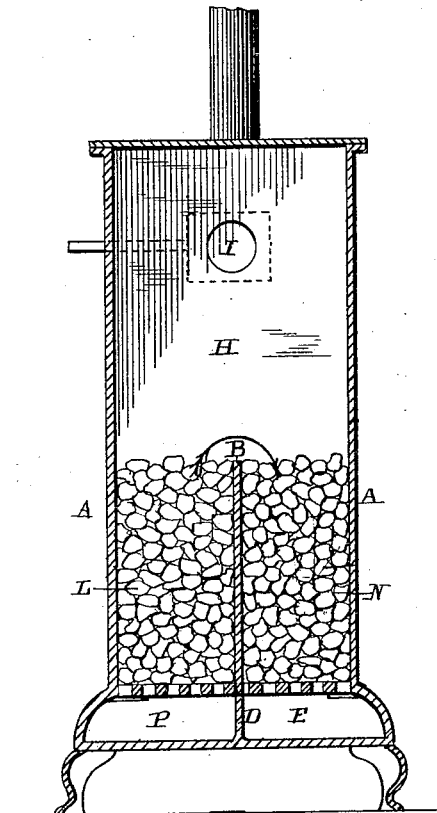


Fig. 4.

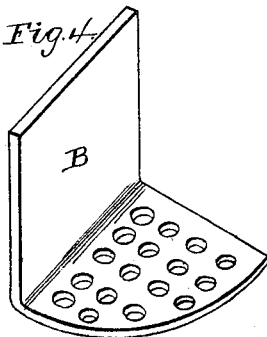


Fig. 3.

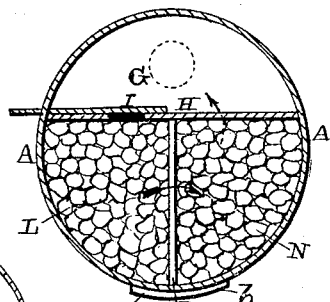
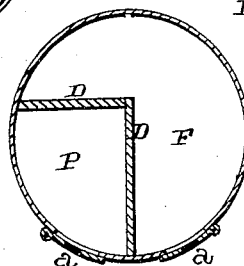


Fig. 5.



WITNESSES.

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STOVE.

SPECIFICATION forming part of Letters Patent No. 263,498, dated August 29, 1882.

Application filed March 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOS. FLANNERY, of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Stoves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in heating-stoves, grates, and furnaces; and it consists in dividing the fire chamber or pot by means of a vertical partition, so that a separate fire can be built upon each side of the partition, the whole products of combustion from one fire being made to pass down through the other, as will be more fully described hereinafter.

The object of my invention is to pass the whole products of combustion from one fire down through a second one for the purpose of causing perfect combustion, and thus producing a smokeless fire at the same time that a much larger amount of heat is developed from the same amount of coal.

Figures 1 and 2 are vertical sections of my invention. Fig. 3 is a horizontal section of the same. Fig. 4 is a perspective of the partition. Fig. 5 is a horizontal section of the stove, taken through the ash-pit.

A represents a stove or furnace of any desired shape, size, or construction, and which has its fire pot or chamber divided by the partition B into two separate and distinct chambers. This partition will be preferably made of fire-clay, and will have its horizontal portion perforated, so as to allow the products of combustion to pass freely through it.

Extending across the inside of the base of the stove will be cast a partition, D, upon which the partition B will rest. This partition D extends more than half-way across the stove, and is then bent at right angles, so as to extend in a line with the vertical partition H. This partition D divides the base into the chambers P F, into which the ashes from the two fires drop. Suitable flanges or projections will also be formed around the inside of the base, and upon which the horizontal perfo-

rated portion of the partition B will be supported.

Communicating with the chamber F, which is formed in the base, is the flue G, which may either consist of a single pipe or outlet, through which the products of combustion escape, or of a number of smaller flues, as may be preferred. This flue may extend to the top of the stove and have the pipe connected to it at that point; or the flue may extend only partially up the back of the stove and have the stove-pipe connected to it any point that may be preferred.

In the partition H, which forms the inner side of this flue, is a suitable damper, I, which will have a handle connected to it, and which will extend through the side of the stove, so that the damper can be opened whenever it is desired to open the stove-door for the purpose of feeding fresh fuel, for cooling off the stove, or for allowing the products of combustion to pass directly up the chimney.

Through the base of the stove, on each side of the partition D, will be made a suitable doorway, *a*, which will be provided with dampers of any suitable kind, and these doors will allow the ashes to be cleaned out. The dampers in these doors will be used to regulate the draft in the usual manner. There will also be made a damper through the door *b* to the stove, and there may be one or more dampers applied at any suitable point to the flue.

The chamber L will have a fire built in it in the usual manner, while the chamber N will be filled with fuel of any suitable kind; but both chambers will be preferably filled with coal. The products of combustion from the chamber L will rise up from the vertical partition and pass directly down through the fuel placed in the chamber N, and the products of combustion from the two chambers will pass up the flue toward the chimney. All of the unconsumed products of combustion from the two chambers L will be arrested and consumed in the chamber N, and as the consumption of the fuel in the chamber N takes place from the top downward, all of its unconsumed products of combustion will be caught by the fuel in the bottom of the chamber, and hence a most perfect combustion will take place and a smokeless fire be produced. As all of the fuel is con-

sumed before it can escape, instead of the larger portion passing off up the chimney in the usual manner, a much larger quantity of heat is developed from the same amount of coal than has heretofore been practicable with stoves of ordinary construction.

Should it be so desired, the vertical partition which divides the two chambers may be made hollow instead of solid, as is shown in Figs. 2, 3, and 4, and the partition will be made to extend nearly up to the top of the stove. The hollow part will extend up just above the fire-line, and then all of the products of combustion from the first chamber will pass down through the hollow part and pass up through the second chamber and from thence up the chimney, as shown in Fig. 1. This hollow part of the partition may be either left entirely empty or it may be filled with carbonate or any other suitable form of lime, and the products of combustion, in passing through this lime, will cause large quantities of carbonic-acid gas to be evolved, which will pass, with the products of combustion, up from the fire in the second chamber. This carbonate of lime or other suitable material serves to arrest all the solid unconsumed products of combustion. The carbonic-acid gas from the first fire and that which is evolved from the lime passes up through the second fire, and it takes up an element of carbon, and is thus converted into carbonic oxide, and is changed from a neutral to a valuable

heating-gas. When the central flue is used, as here described, a door, C, having a register is necessary for both sets, and especially for the second chamber, where a certain quantity of atmospheric air must be admitted, so as to mingle with the carbonic oxide and other gases, and thus enable them to be consumed. Where the central flue is not used a single door with a single damper will be sufficient, as shown in Fig. 3.

Having thus described my invention, I claim—

1. A stove having its fire-pot divided into two separate and distinct chambers, in combination with the division D and a flue through which the products of combustion pass, whereby the products of combustion from one chamber are made to pass down through the other before they reach the flue, substantially as set forth.

2. In a stove, the combination of partitions B D H and damper I, the fire-pot of the stove being divided into two separate chambers, so that the products of combustion from the first fire will pass down through the second one, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH FLANNERY.

Witnesses:

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