No. 66,862.

PATENTED JULY 16, 1867.

M. S. MARSHALL.

GAS STOVE.

Fig. 1.

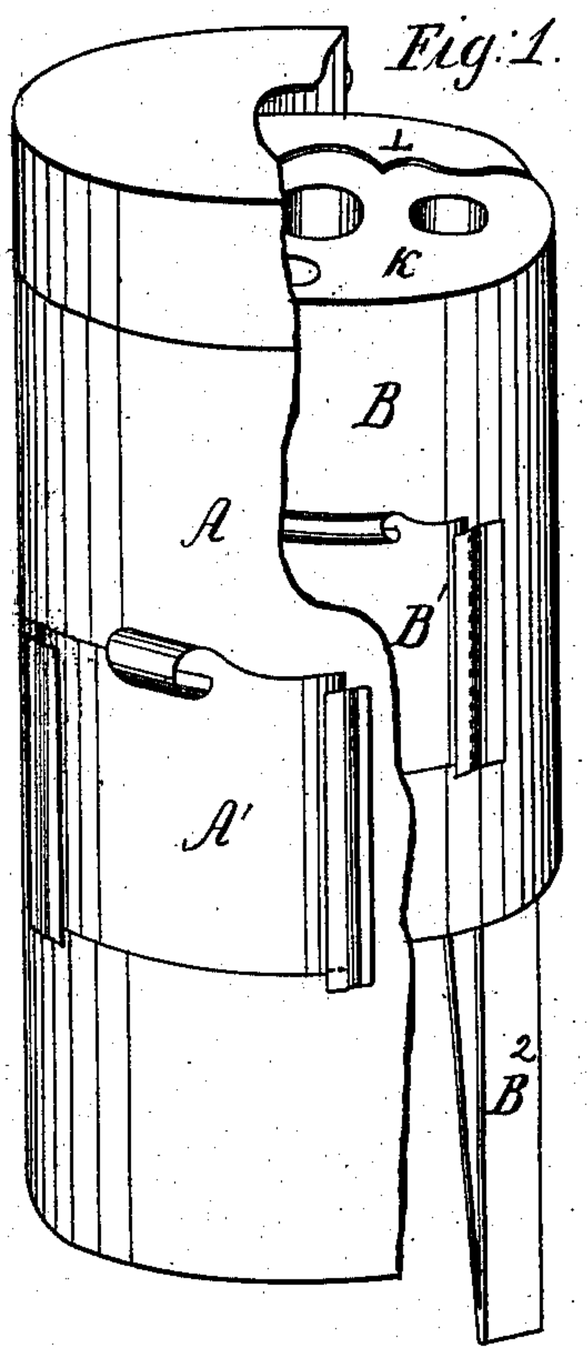


Fig. 2.

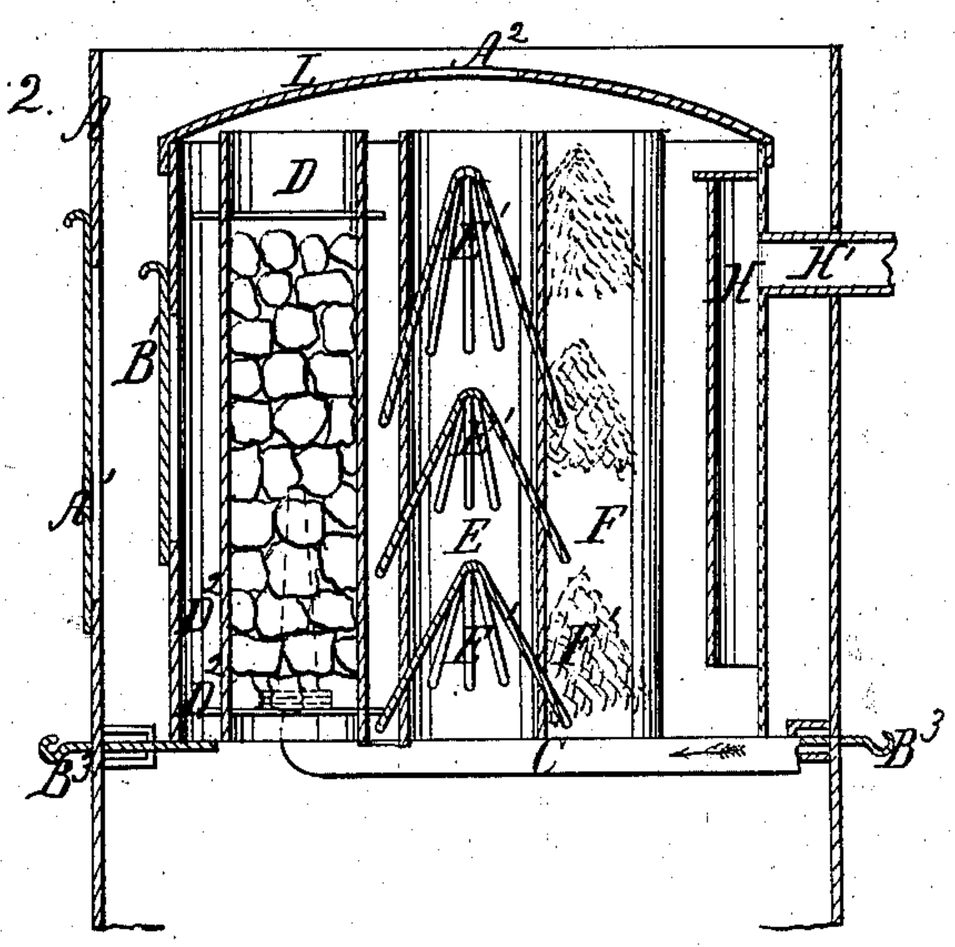


Fig. 4.

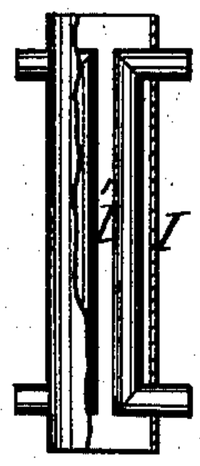
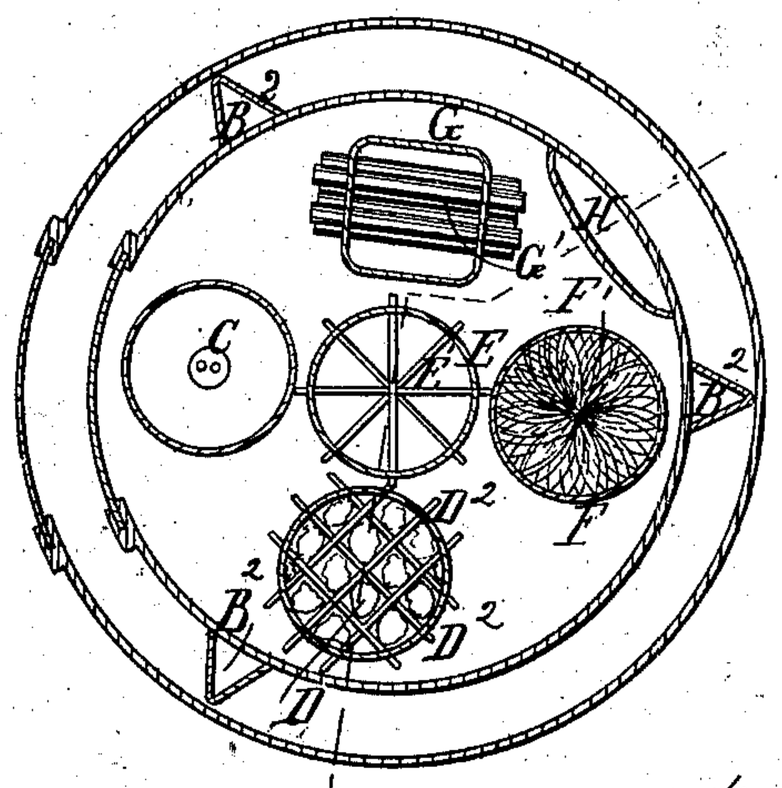


Fig. 3.



Witnesses;
L. Murphy

Inventor;
Moses S. Marshall
by
D. C. Holloway & Co
his Attys

United States Patent Office.

MOSES S. MARSHALL, OF MELROSE, MASSACHUSETTS.

Letters Patent No. 66,862, *dated July* 16, 1867.

GAS-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, MOSES S. MARSHALL, of Melrose, in the county of Middlesex, and State of Massachusetts, have invented a new and useful improvement in Gas-Stoves and Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a perspective view, with parts of the exterior casing represented as broken away.

Figure 2 is a vertical section, on the line *x x*, fig. 3, of the gas-stove.

Figure 3 is a horizontal section, and

Figure 4 is an elevation and section of one form of pipe for use in the gas-stove.

In all the figures the same letters are employed in the identification of identical parts.

The following description will enable any one skilled in the art to manufacture my improved furnace and stove.

A is the external case of the furnace, having a door, A^1, and an opening at A^2 through which the air heated by the stove within the furnace may be led in pipes to any part of the building. B is the gas-stove inserted within the furnace, and so constructed and arranged that it may be used, independently of the furnace, for the purpose of warming a single room. It has also a door, B^1, opposite to the door of the furnace A^1. In order that it may be detached, it is made to rest upon pins B^3, passing through the walls of the furnace A. B^2 are cleats on the side of the stove resting against the interior of the furnace-shell A. The stove is heated by a gas-burner, the pipe C entering the stove through an opening large enough to admit the requisite amount of oxygen to support combustion. The flame of the gas-jet burns freely within the chamber of the stove. The stove is enclosed at the top and bottom, but has one or more pipes, D E F G, opening vertically through the same, through which the air circulates freely upwards, for the purpose of increasing the heating-surface. To the same end these pipes are formed in some or all of the following ways: The pipe D has a grating formed by transverse wires or rods placed at the bottom and another at the top. The ends of these wires project into the chamber, where, becoming highly heated, they conduct the heat thus acquired into the pipe and yield it to the passing current of air. The body of the pipe is filled with pieces of soapstone or other suitable substances, so arranged as to allow the currents to flow between them through the pipes. These substances, being externally in contact with the metallic shell of the pipe, receive the heat therefrom and conduct it into the interior, where, coming in like manner in contact with passing current of air, the heat is taken up by the air and carried into the room. The pipe E is filled with bars E′, which in like manner project, as do the bars D^2, into the chamber of the stove. I have ascertained by experiments that heat is transmitted much more rapidly along a metallic bar when vertical than when horizontal. To avail myself of this principle the bars E′ are carried upwards, in the manner shown in fig. 2, forming conical gratings one over the other in the pipe. The pipe F is constructed upon the same principle as the pipe E, except that internal cones are formed of wire gauze F′, inserted on the inside of the pipe, as indicated in the drawings. These cones are heated by contact with the sides of the pipe. Pipe G is constructed with a series of cross-pipes, G′, around which the passing currents circulate. These pipes G′ also project, for the same reason as do the wires, through the shell of the pipe G and into the chamber of the stove. In fig. 4 I have shown another form of pipe, I, with internal pipes I′ placed vertically, and constructed with elbows, which, in like manner and for the same reason, are extended into the chamber of the stove. The pipes D, E, F, and G, all extend through the top K of the stove. Over this top is a plate, L, through which an opening conducts the heat into the space within the furnace and stove whence it is led to any part of the building, as already described. In order to prevent the waste of heat by a too rapid draught, the chimney-flue H opens near the bottom and connects with the pipe H′.

I am aware that numerous attempts have been made to encourage the use of gas or other burning material in stoves by passing the currents of air through various substances and through pipes and gauze screens, and I do not claim broadly to cover the use of any of these, desiring only to cover the peculiarities in construction and arrangement of parts, as set forth herein, by which I obtain a greater extent of heating-surface than in other modes of arrangement that are known and in use.

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

1. The combination of the furnace A, pins B^3, and gas-stove B, when said parts are respectively constructed and arranged to operate substantially as and for the purpose set forth.

2. The vertical pipe D, when constructed with gratings D^2, formed by outwardly projecting rods, and filled by pieces of soapstone or other suitable conducting and refracting material substantially as and for the purpose set forth.

3. The pipe G, when constructed with internal pipes opening and projecting into the chamber of the stove, substantially as and for the purpose set forth.

4. In combination with the vertical pipes D, E, F, and G, or all or any of them, I claim the double top-plates K and L, arranged substantially as and for the purpose set forth.

5. In combination with the stove-plates B, I claim the gas-pipe and burner C and flue-plate H, when arranged substantially as and for the purpose set forth.

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

M. S. MARSHALL.

Witnesses:

JOHN HARSAN,

BENJAMIN WOODWARD.