R. GEORGE.

Gas Stove.

No. 108,583. Patented Oct. 25, 1870.

Fig. 1.

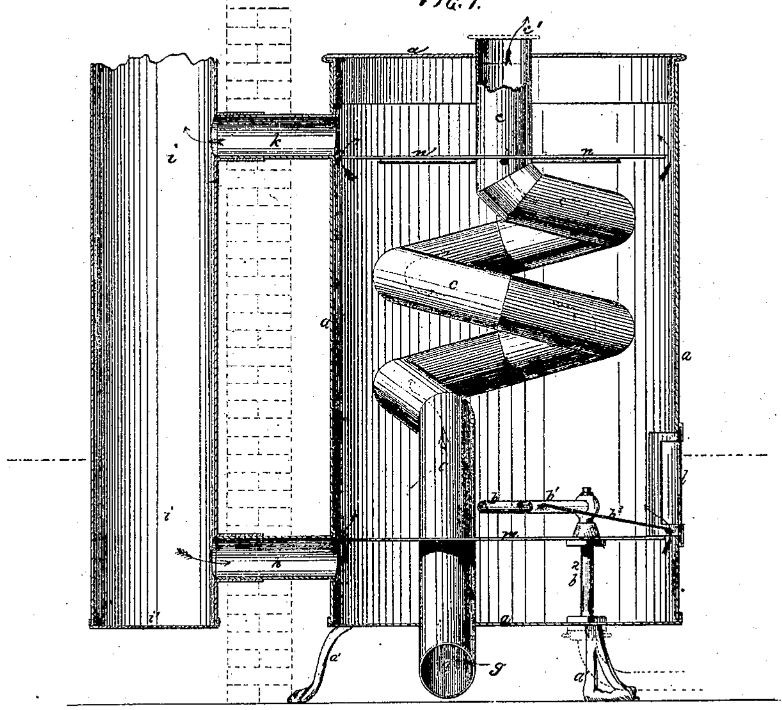
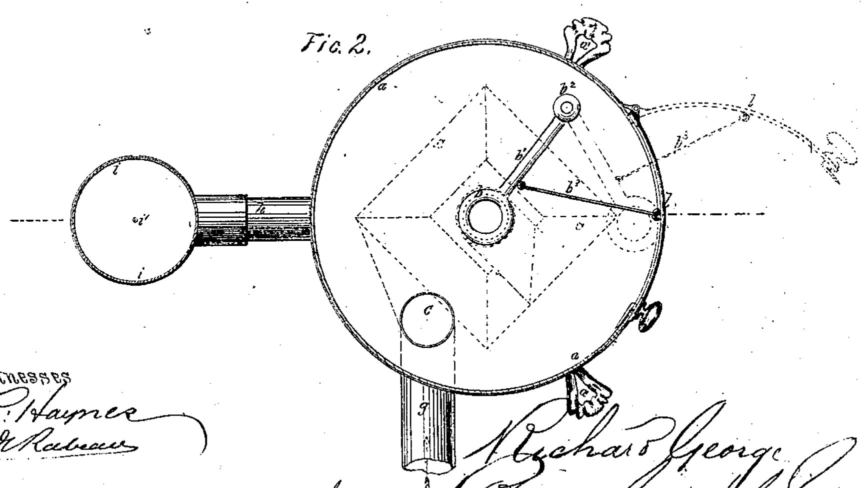


Fig. 2.



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UNITED STATES PATENT OFFICE.

RICHARD GEORGE, OF KILBURN, COUNTY OF MIDDLESEX, ENGLAND.

IMPROVEMENT IN GAS-HEATERS.

Specification forming part of Letters Patent No. **108,583**, dated October 25, 1870.

To all whom it may concern:

Be it known that I, RICHARD GEORGE, of Kilburn, in the county of Middlesex, England, a subject of the Queen of Great Britain, have invented or discovered new and useful Improvements in Gas-Stoves for Heating and Ventilating; and I, the said RICHARD GEORGE, do hereby declare the nature of the said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement thereof—that is to say:

This invention relates to improved arrangements in the mode of admitting air to and in carrying off the products of combustion from gas-stoves, and also in the arrangement and construction of such stoves for heating and ventilating apartments or buildings. For this purpose I prefer to construct the chamber or body of a stove of thin sheet metal, access being had to the burner or burners by means of a door which can be closed so as to exclude the atmosphere from entering the stove except through the air-supply pipe. The air for supporting combustion enters the lower part of the stove by means of a pipe in communication with the chimney flue or pipe, which is also connected by a pipe with the upper part of the stove to carry off the products of combustion. The combustion of the gas is thus effected in a chamber which has no communication with the atmosphere of the apartment in which the stove is situated. The combined inlet and outlet pipe may be so arranged as to transmit heat to the part of the apartment or building through which it is conducted. Diaphragms are by preference arranged in the upper and lower ends of the stove to distribute the air and products of combustion within the chamber of the stove. The door or other part of the body of the stove may be arranged to transmit light through glass or mica panels, if desired.

In order to admit a current of warm air into the apartment or building for heating and ventilating, I arrange a pipe in communication with the outer atmosphere, such pipe passing into the lower end of the stove and making a circuit around the upper part of the chamber, terminating with an outlet-opening into the apartment.

In order that my improvements may be most fully understood and readily carried into practice, I will proceed to describe the drawings hereunto annexed.

In the drawings, Figure 1 shows a vertical section, and Fig. 2 a horizontal section, of a gas-stove or warming and ventilating apparatus arranged according to my invention, in which the heat is obtained by the combustion of gas.

a is the outer chamber or case, formed of thin sheet metal, supported upon the legs *a'*, and *b* is the gas-burner, which may be of any ordinary form; but in the arrangement shown the burner is in the form of a ring at the end of an arm, *b'*, which is jointed to the top of the gas-supply pipe b^2, so that it can move to and fro thereon. The arm *b'* is connected by a link, b^3, to the door of the stove, which, on being opened, draws out the burner to the exterior of the stove, by which arrangement the gas can be ignited without risk of its escaping into the chamber of the stove.

c is a coil of pipe formed of thin sheet metal, entering at the lower and passing out at the upper part of the chamber *a*, and through this pipe a current of air is conducted from the exterior of the apartment or building through the pipe or channel *g*. By this means a current of fresh warm air is constantly supplied to ventilate the interior of the apartment or building. When desired, the outlet to the pipe *c* may be closed by a cover, *c'*, (indicated in dotted lines,) to cut off the supply of air from the exterior.

In the arrangement shown the air for supporting combustion enters the chamber *a* by the inlet-pipe *h* from the flue *i*, exterior of the apartment or building in which the stove is situated, and the products of combustion pass out of the chamber *a* into the flue *i* by the outlet-pipe *k*, an upward and downward current being established in the flue *i*. The pipes *h* and *k* may pass into an ordinary opening or entrance to the chimney from the apartment in which the gas-stove is placed, being closed by an iron plate or otherwise. It will thus be seen that the interior of the stove is in communication with the chimney only by the pipes *h* and *k*, being a closed chamber in other respects. All risk of the gas being blown out by currents of air is prevented by this arrangement. Loss of heat by rapid passage of air through the stove is also prevented.

i' is a hole for the escape of condensed va-

por from the flue *i*. The flue *i* is only employed where an ordinary chimney is not available.

l is a door furnished with a panel of glass or mica, which must be closed when the gas is burning, so as to exclude the passage of air through the opening of the door.

m is a diaphragm for distributing the air for supporting combustion, and *n* is another diaphragm for causing the heated products of combustion to circulate within the chamber *a*.

I will here remark that the current of warm air introduced into an apartment through an apparatus constructed as above described may, after warming and ventilating the room in which the apparatus is placed, be conducted through suitable channels into other rooms or parts of a building for the purpose of warming and ventilating the same.

It will be understood from the foregoing description that the heat from the heated products of combustion of gas burning within a chamber, *h*, of thin sheet metal, (by preference iron,) is transmitted through and radiated from the sides of such chamber, a current of air passing at the same time from the exterior to the interior of the apartment through a pipe or passage, *c*, or other contrivance of thin sheet metal so arranged within the chamber of the stove as to warm the air passing through it The chamber of the stove is of large capacity in relation to the size of the burner to prevent the overheating of the metal and to afford a large radiating surface, only sufficient air being supplied through the combined inlet and outlet flue *i* to the burner to effect the combustion of the gas. The products of combustion travel very slowly through the chamber *a* to the combined outlet and inlet pipe or chimney *i*, the diaphragms *m* and *n* at the lower and upper parts of the chamber assisting in producing a steady and even flow of the air and products of combustion through the chamber *a*.

Having now described the nature of my invention and the means which I employ for carrying the same into operation, I would have it understood that I do not confine myself to the exact form or the details shown and described, which may be greatly varied without departing from the nature of my invention.

What I claim is—

1. The improved arrangement or construction of gas-stoves for warming and ventilating apartments and buildings, in which the combustion of the gas is effected in a closed chamber, *a*, of thin sheet metal, the interior of which chamber has no communication with the atmosphere of the room, the air to support the combustion of the gas being drawn through a pipe, *h*, from a flue or chimney, *i*, into which the products of combustion from the stove are also conducted by a pipe, *k*, substantially in the manner herein described, and shown in the accompanying drawings.

2. The application to gas-stoves constructed according to my invention for heating and ventilating of a pipe or passage, *c*, of thin sheet metal, for conducting a current of air from the outside of the apartment or building to the interior thereof, such air being warmed in its transit through the pipe or passage *c*, substantially in the manner herein described, and shown in the drawings hereunto annexed.

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