(No Model.)

W. W. GOODWIN.

GAS HEATING STOVE.

No. 263,507. Patented Aug. 29, 1882.

Fig. 1.

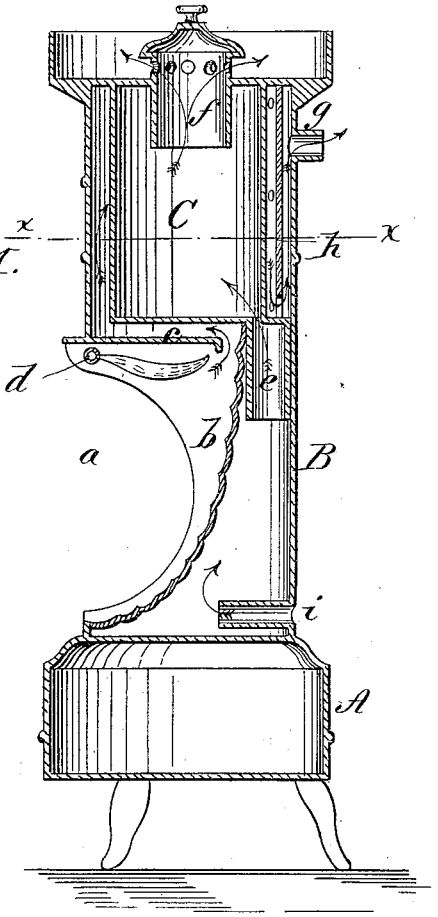
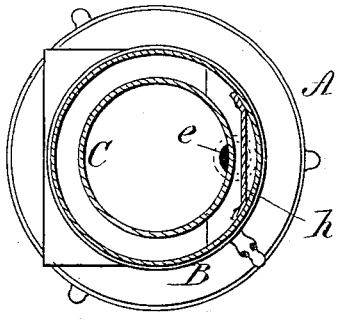


Fig. 2.



WITNESSES:

Donn Twitchell.

C. Sedgwick

INVENTOR:

W. W. Goodwin

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM W. GOODWIN, OF PHILADELPHIA, PENNSYLVANIA.

GAS HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 263,507, dated August 29, 1882.

Application filed June 30, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. GOODWIN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Gas Heating-Stoves, of which the following is a full, clear, and exact description.

The object of my improvements in gas heating-stoves is primarily to utilize the heating-power of the gas to the greatest possible extent, and at the same time to get rid of the products of combustion without allowing them to enter the room where the stove is used.

Gas-stoves have heretofore been connected with an escape-flue, so that the burned gases may escape to the chimney; but as formerly made such stoves have not been economical in the use of gas on account of the escape to the chimney being too direct and free. It is to be understood in burning gas for fuel that it is not necessary to provide a draft in order to promote combustion, as is the case in using solid fuels; but that all that is required is to carry off the burned gases or products of combustion after their heating properties have been utilized to the greatest possible extent. To attain the best possible results I construct stoves to give heat by reflection and radiation from the gas-flames, and by convection by heating a current of air passed through the tube; and I further provide for detaining the heated products of combustion as long as possible within the heating-chamber of the stove, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a vertical section of a gas heating-stove of my improved construction. Fig. 2 is a horizontal section of the same on line *x x* of Fig. 1.

The stove shown in the drawings is cylindrical in form; but I do no limit myself in that particular, as it may be made in rectangular, oblong, or other desired form.

A is the base of the stove, on which is a cylindrical shell, B, that is formed with an opening, *a*, at the front of the stove, the shell B extending upward to form a heating-chamber at the top part of the stove.

Within the shell B is a grooved reflector, *b*, which is at the back part of the opening *a*, and forms a partition that separates the space at its back from the opening at the front ot the stove.

At the top part of the chamber B is a plate, *c*, beneath which are the gas-burners *d*, and the plate *c* is formed with an opening next to the reflector *b*, that allows the escape of the products of combustion to the upper part of the stove.

Behind the reflector *b* is a pipe, *e*, which fits into the space between the reflector and the back of the stove.

In the upper part of the stove is a hollow shell or chamber, C, closed at the bottom, except at an opening which communicates with the pipe *e*, and fitted at the top with a pipe, *f*, that extends through the top of the stove for allowing the escape of heated air into the room, as hereinafter set forth. This cylinder C is attached to the top plate of the stove, and is of smaller diameter than the main shell, so that there is a space at its sides and beneath it, into which the products of combustion may enter from the opening in the plate *c*.

At *g* is an opening which can be connected to a flue or chimney in any suitable manner. In front of this opening *g* is fitted a deflecting-plate, *h*, which is attached to the top plate of the stove, and extends to near the bottom of chamber C, so as to cut off direct communication between the space around chamber C and the outlet-opening *g*. In the lower part of the stove is an inlet-opening, *i*, which allows air to enter to the space behind the reflector *b*.

In the operation of the stove, the gas being lighted, the reflector *b* acts to throw the heat of the burners into the room. The heated gases pass through the opening in the plate *c* into the upper part of the stove and around chamber C at the front and sides, and thence passing downward at the back they escape beneath the plate *h* to the outlet *g*. The upper part of the stove and the chamber C thus becomes highly heated, and the air passing in at the opening *i* and through the pipe *e* to the chamber C will escape through the pipe *f* at the top of the stove in a highly-heated condition. The heated products of combustion in the upper part of the stove will descend as they lose their heat until they reach the opening at the lower part of the plate *h*, when they

will escape, as before mentioned. There will be no direct escape of the heated gases to the outlet *g*, but only as they become cooled sufficiently to descend. In this manner the heat is utilized to the greatest possible extent. In addition to heating the current of air that passes through the upper part of the stove, it will heat by radiation and reflection.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a gas heating-stove, the combination, with the shell B, provided with the reflector *b* and the air-inlet *i*, of the chamber C, provided with the perforated pipe *f* at its upper end, and with the pipe *e* at its lower end, extending into and filling the space between the reflector and back of the shell, substantially as and for the purpose set forth.

2. In a gas heating-stove, the combination, with shell B, provided with the reflector *b*, the inlet *i*, and the exit *g*, of the chamber C, suspended in the upper part of the shell, and provided with the perforated pipe *f* and the pipe *e*, and the detaining-plate *h*, fitted in the space around the chamber C and in front of the outlet *g*, substantially as and for the purpose set forth.

WM. W. GOODWIN.

Witnesses:
GEO. D. WALKER,
C. SEDGWICK.