

(No Model.)

S. T. BRYCE.

HOT AIR FURNACE.

No. 319,062.

Patented June 2, 1885.

Fig. 2.

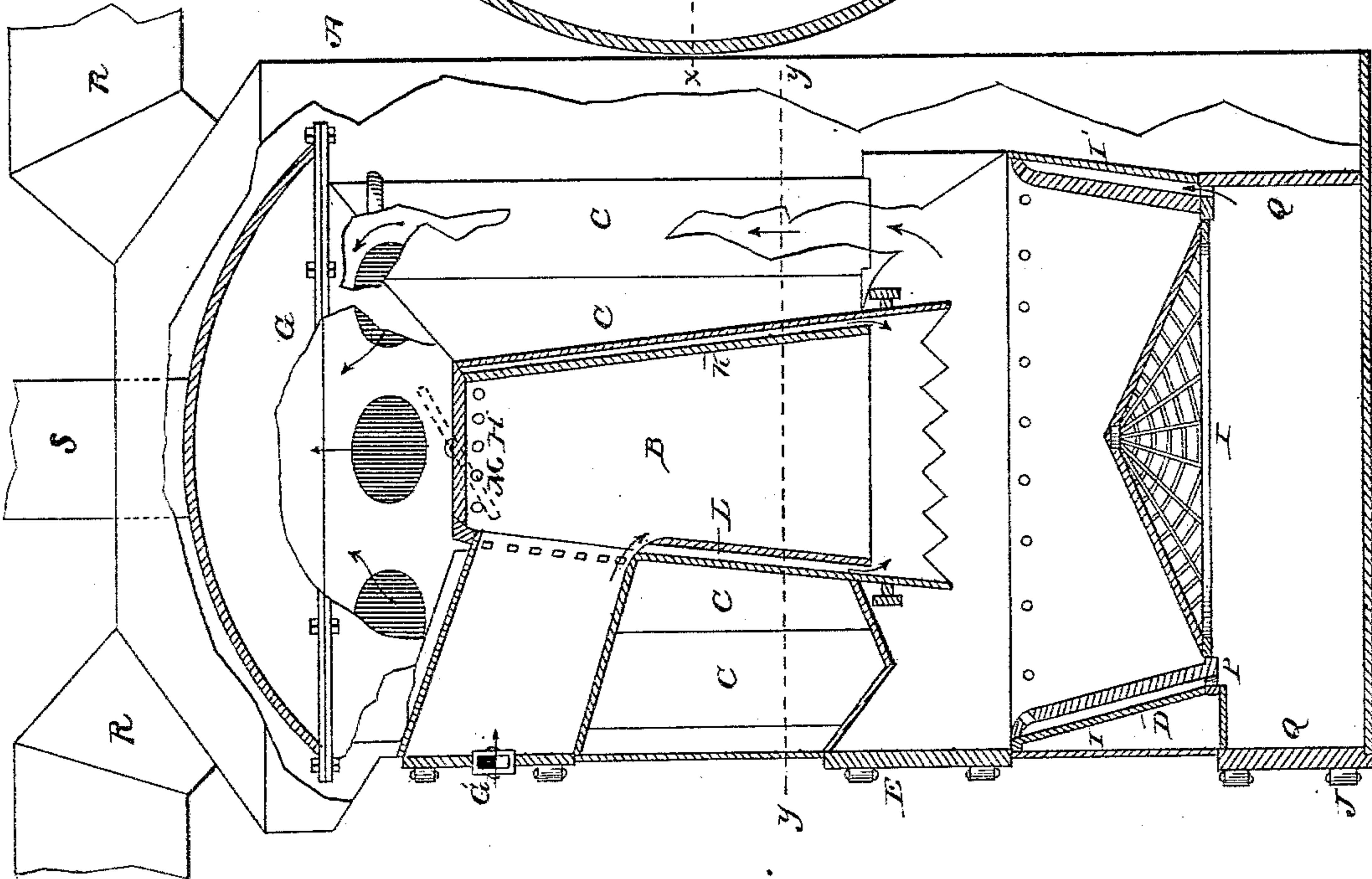
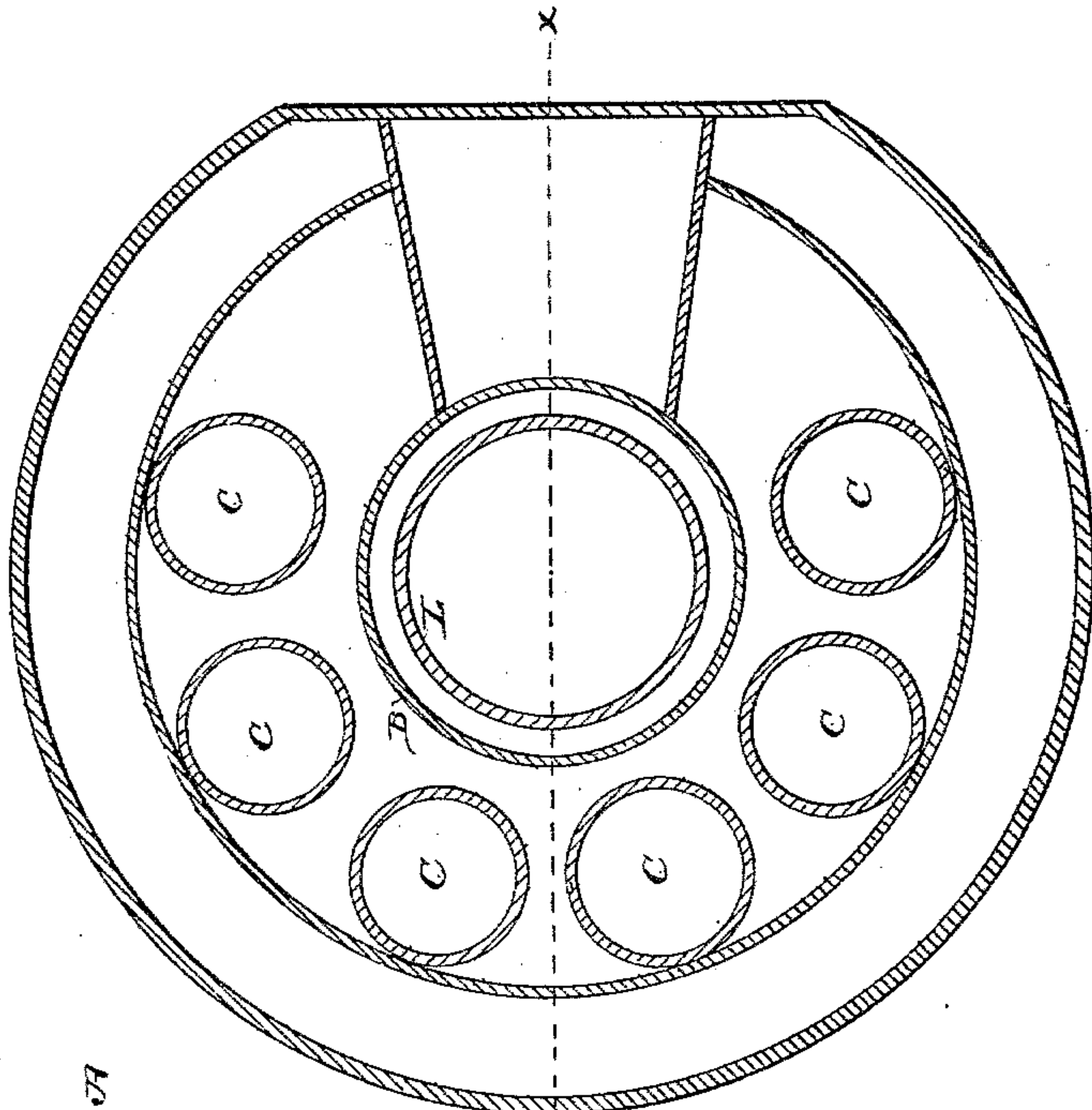


Fig. 1.

WITNESSES

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# UNITED STATES PATENT OFFICE.

STEPHEN T. BRYCE, OF DAYTON, OHIO.

## HOT-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 319,062, dated June 2, 1885.

Application filed June 21, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, STEPHEN T. BRYCE, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented a new and useful Hot-Air Furnace, of which the following is a specification, reference being had to the accompanying drawings.

This invention has relation to self-feeding furnaces and stoves; and it has for its object to provide a heater of the class referred to that shall possess superior advantages over others of its class in point of simplicity, durability, and general efficiency; and it consists in the construction and novel arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claim.

In the drawings, Figure 1 is a vertical sectional view on the line *xx* in Fig. 2, and Fig. 2 is a horizontal section on the line *yy* in Fig. 1.

Referring by letter to the accompanying drawings, A designates the casing of a stove or furnace. B is the magazine, which is partially surrounded by hot-air flues C. D is the fire-bowl; E, the fire-door; F, the feed-door; G, the radiator; H, the clean-out trap; I, the grate, and J the door to the ash pit or pan.

The magazine is provided with a double wall, K, and is constructed with uniform or gradual increase from top to bottom to facilitate self-feeding. The double wall K forms an air-space, L. The feed-door is provided with a register or opening, G', through which air is introduced and passes through perforations M in the inner wall or cylinder of the magazine, into the air-space L, and down and again enters the magazine just above the fire-chamber, thereby supplying a downdraft to the fire, and preventing the coal from burning or charring in the magazine. The air in passing down through the air-space carries with it the smoke and gases that would otherwise accumulate in the magazine to the fire-chamber where it is consumed. It also operates to keep down the temperature of the feed-cylinder. The top radiator, G, is provided with a clean-out trap, H, which is located directly over the feed-cylinder, and is pivoted and arranged to dump the soot and ashes accumulating in the radiator directly into the

fire through the magazine. The fire-bowl D is lined either with cast-iron or fire-brick, with a space, I', between said lining and the fire-bowl. The lining is supported by a cast-iron ring, P, provided with holes or orifices Q, to admit air from the ash-pit to the air-space between the fire-bowl and lining, which air passes out of said space through openings O at the top of the lining into the fire-chamber above the coal for the purpose of protecting the fire-bowl and preventing it from burning out, and to insure more perfect combustion of the smoke and gases. R R are the hot-air flues leading from the furnace, and S is the smoke-flue.

The magazine may be combined with one cylinder with flues or passages inside of the cylinder to carry off gas and supply draft for combustion.

It will be seen that by the introduction of air to the magazine above the fuel the temperature of the inner chamber will be modified, and a current of air will be supplied to the space or passage between the two walls to the magazine, and to carry any gases and smoke accumulating in the magazine to the combustion-chamber.

I am aware that it has been proposed to construct stoves with magazines having tubes extending down their inner sides, said tubes communicating with the inside of the magazines at their upper ends and with the fire-chamber at their lower ends, and covers for the magazines having dampers for admitting air to the upper ends of the magazines, chambers around the upper ends of the magazines, and flues communicating with said chambers and with the fire-chambers, and this also I disclaim. My invention differs from this in that I provide a radiating-chamber at the upper end of the magazine, with which radiating-chamber the flues that are arranged around the magazine communicate, and in providing a trap for the upper end of the magazine, between it and the radiating-chamber.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

A hot-air furnace having the casing provided with a register for admitting cold air

above the fuel in the magazine, a magazine  
having an inner and an outer wall, the inner  
wall being provided with openings near its  
top, whereby a current of cold air is passed  
5 downwardly between the walls of the maga-  
zine to the combustion-chamber, a radiating-  
chamber located above the magazine, flues  
communicating with the radiating-chamber  
and with the combustion-chamber for convey-  
10 ing the heated air to the radiating-chamber,

and a trap between the upper end of the maga-  
zine and the radiating-chamber, for the pur-  
pose set forth, substantially as described.

In testimony that I claim the foregoing as my  
own I have hereto affixed my signature in 15  
presence of two witnesses.

STEPHEN T. BRYCE.

Witnesses:

DAVID B. CORWIN,  
FRANK S. BREENE.