(No Model.)

H. S. HOUGHTON.

HEATING FURNACE.

No. 438,887. Patented Oct. 21, 1890.

Fig. 1.

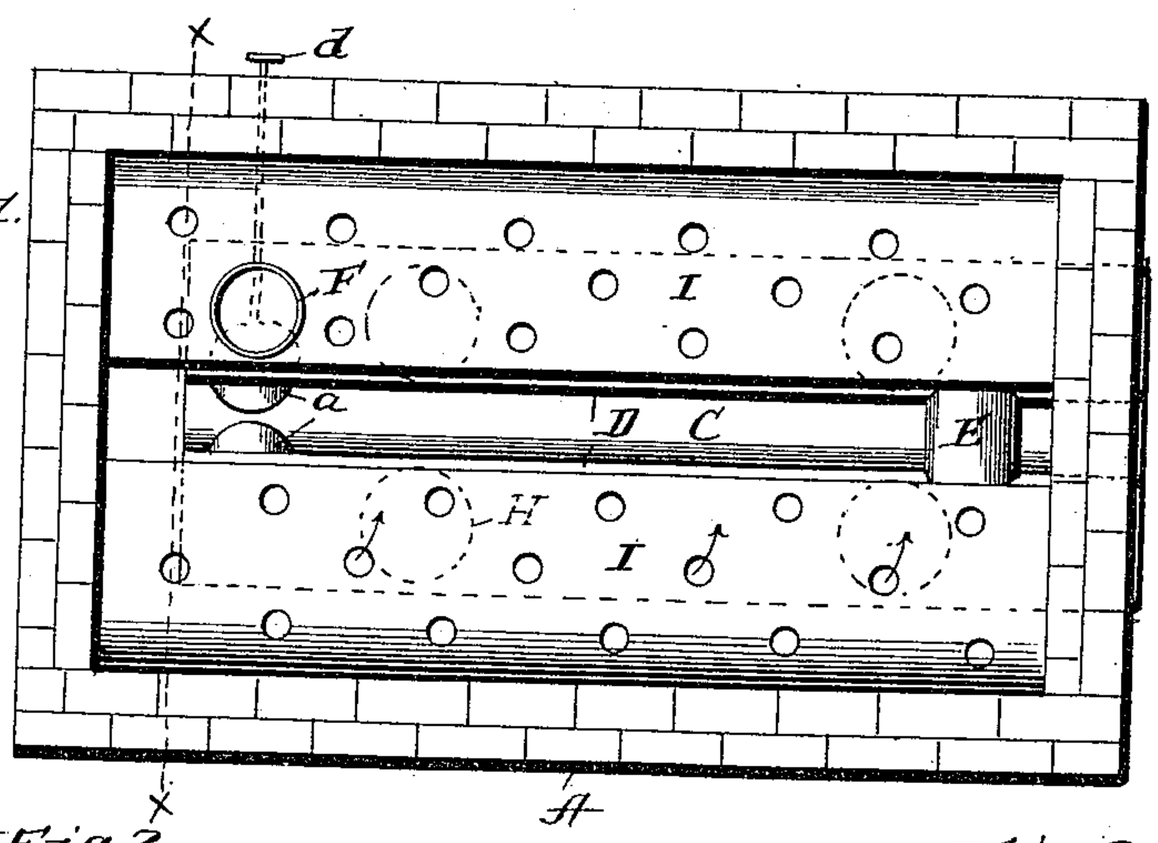


Fig. 2.

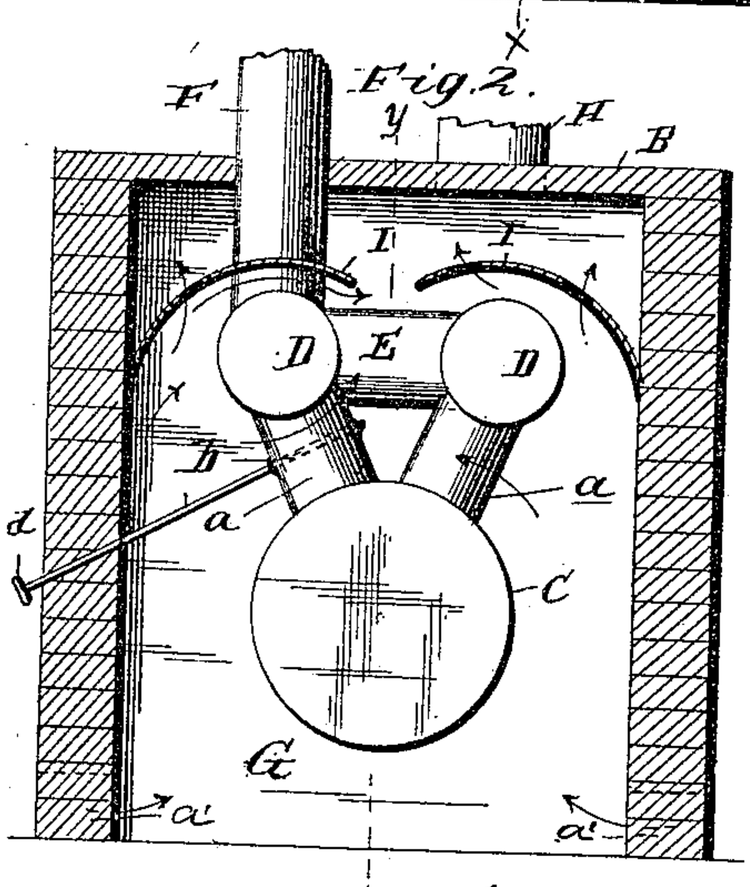


Fig. 3.

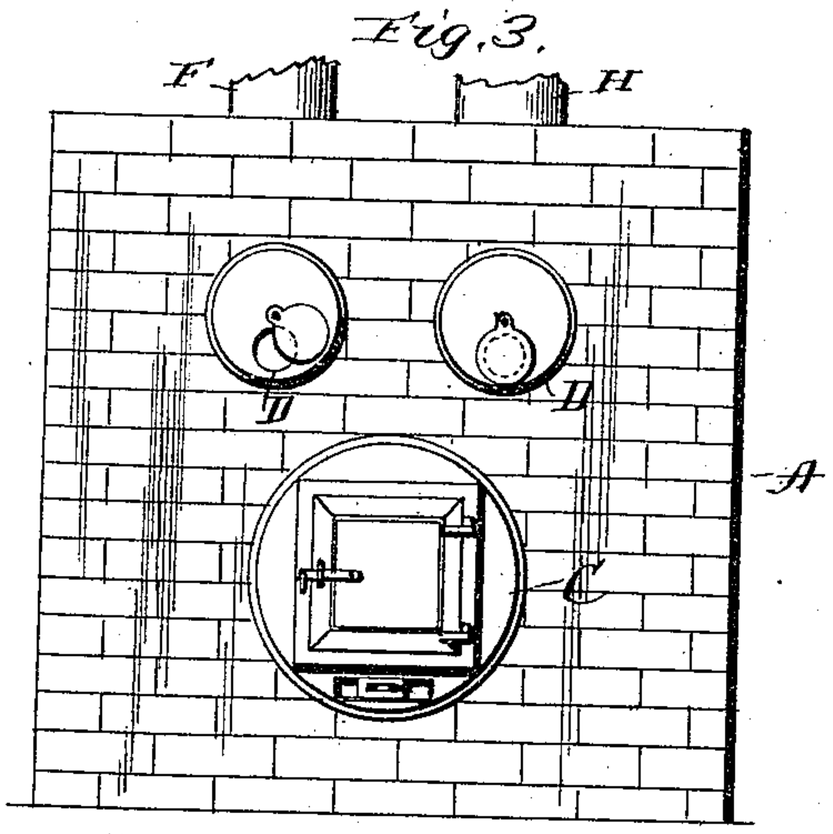
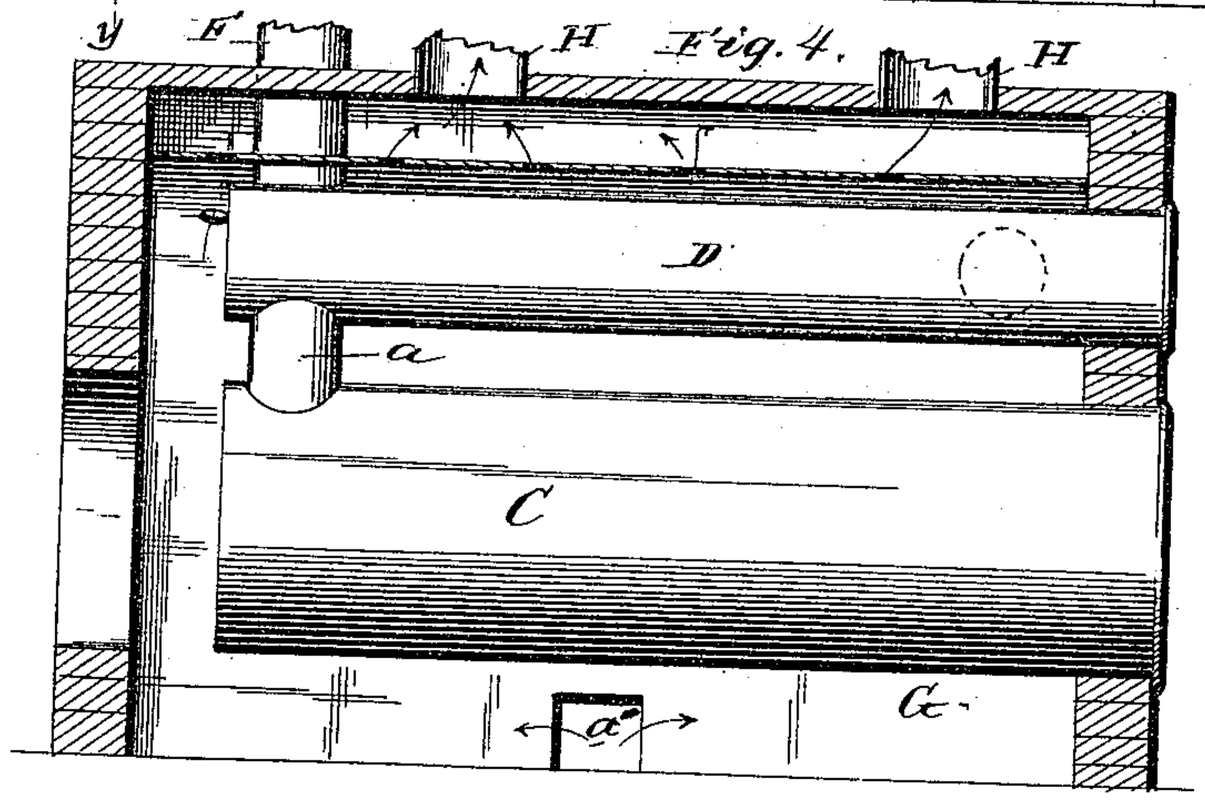


Fig. 4.



Witnesses:
C. H. Haeder
Thomas E. Tupin

Inventor
Henry S. Houghton
By James L. Shehy
Attorney

UNITED STATES PATENT OFFICE.

HENRY S. HOUGHTON, OF COLDBROOK SPRINGS, MASSACHUSETTS.

HEATING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 438,887, dated October 21, 1890.

Application filed June 14, 1890. Serial No. 355,486. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. HOUGHTON, a citizen of the United States, residing at Coldbrook Springs, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Heating-Furnaces; and I do 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 appertains to make and use the same.

This invention has relation to improvements in heating-furnaces adapted for burning wood; and the novelty will be fully understood from the following description and claims, when taken in connection with the annexed drawings, in which—

Figure 1 is a plan view of my improved furnace with the top removed. Fig. 2 is a transverse vertical sectional view of the furnace, taken at the point indicated by the dotted line *x x* of Fig. 1. Fig. 3 is a front view with the hot-air and smoke pipes partly broken away, and Fig. 4 is a vertical longitudinal sectional view taken in the plane indicated by the dotted lines *y y* on Fig. 2.

Referring by letter to said drawings, A indicates a furnace, which is suitably constructed of brick or masonry and provided at the base of its side walls with a number of cold-air ducts *a'*. This furnace has a top plate B, which is provided with a suitable number of apertures for the outlet of the smoke and hot-air pipes, as shown.

Suitably arranged within the casing or masonry is a horizontal cylinder C, having a door at its outer end through which wood, as fuel, may be placed therein.

D D indicate radiating-cylinders. These cylinders are arranged above the fire-cylinder C and parallel therewith, and are each connected with the rear end of the fire or fuel cylinder by means of short oblique pipes *a*. These radiating-cylinders are connected at their opposite or forward ends by means of a transverse pipe E, and leading from the rear end of one of said cylinders is a smoke-pipe F.

The pipe *a*, which connects the radiating-cylinder bearing the smoke-pipe with the fuel-cylinder, is provided with a damper *b*, the handle *d* of which passes out through one of the side walls of the furnace, as shown, so as to allow it to be manipulated by an attendant. It will thus be seen that the hot air, smoke, and products of combustion may, by means of the damper, be caused to pass through one of the radiating-cylinders and thence through the other before entering the smoke-pipe.

The forward ends of the radiating-cylinders are provided with removable heads, whereby access may be had for cleaning them, and said heads are provided with check-draft dampers, as shown. The masonry or housing for these cylinders afford a hot-air chamber G, and the top plate B of the furnace is provided with apertures bearing pipes H H, which may lead to any desired compartment in a building.

I I indicate diverting or deflecting plates. These plates, which are secured at one edge to one of the inner walls of the furnace, extend the entire length thereof and overhang the radiating-cylinders in a curved manner. These plates are numerously perforated, as shown, and are designed to deflect the air-currents as they enter the ducts at the base of the side walls, and without materially deflecting the draft will cast the cold or partly-heated air against said radiating-cylinders, and thereby absorb the heat therefrom before being finally discharged from the furnace.

With a furnace of the construction illustrated but little fuel is consumed to attain a large amount of heat, the radiating cylinders and deflectors being so arranged with relation to each other as to materially utilize the currents of cold air passing up from the bottom of the casing.

Having described my invention, what I claim is—

1. In a heating-furnace, the combination, with the fire-cylinder, of the radiating-cylinders arranged above the same, and the perforated deflectors overhanging the radiating-cylinders, substantially as specified.

2. In a heating-furnace, the combination, with the fire-cylinder, of the radiating-cylinders arranged above the same, the obliquely-arranged pipes connecting the rear ends of the radiating-cylinders with the fire-cylinder, the transverse pipe connecting the forward ends of the radiating-cylinders, the smoke-pipe, the damper in one of the pipes connect-

ing the radiating-cylinders with the fire-cylinders, and the curved perforated deflectors overhanging the radiating-cylinders, substantially as specified.

3. The combination, with the casing, of the fire-cylinder arranged therein, the radiating-cylinders arranged above the fire-cylinder and connected with one end thereof by the oblique pipes, and the perforated deflectors overhanging the radiating-cylinders, substantially as specified.

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

HENRY S. HOUGHTON.

Witnesses:
GEO. W. SPAULDING,
SAML. P. COOK.