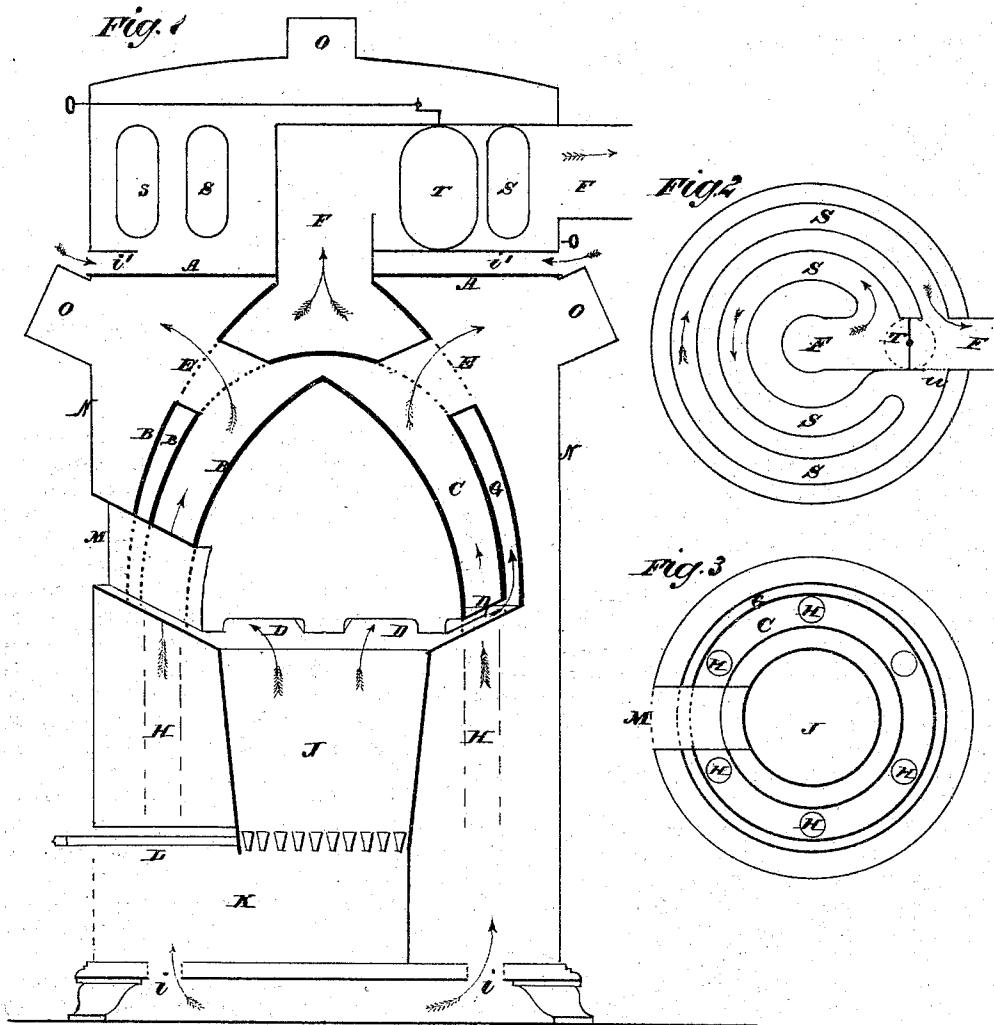


D. BOYD.
Hot-Air Furnaces.

No. 153,928.

Patented Aug. 11, 1874.



Witnesses.
Chadwick
Alex. F. Roberts

Inventor
D. Boyd.
per *Wm. H. [Signature]*
Attorneys.

UNITED STATES PATENT OFFICE.

DAVID BOYD, OF NEW YORK, N. Y.

IMPROVEMENT IN HOT-AIR FURNACES.

Specification forming part of Letters Patent No. **153,928**, dated August 11, 1874; application filed April 25, 1874.

To all whom it may concern:

Be it known that I, DAVID BOYD, of the city, county and State of New York, have invented a new and useful Improvement in Stoves and Heat-Radiators, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical section of the heater, showing the diaphragm and general arrangement of the parts. Fig. 2 is a horizontal section above the diaphragm. Fig. 3 is a horizontal section through the base of the dome above the fire-chamber.

Similar letters of reference indicate corresponding parts.

This improved apparatus is designed for use both as a heater for the apartment in which it may be located, and as a furnace for heating other parts of the building to which hot air may be conveniently or economically conveyed by pipes or tubes.

The features of novelty are hereinafter described generally, and indicated specifically in the claim.

The lower part of the heater is made up of domes B B B, fire-box J, ash-box K, inclosed in a casing, having openings *o* for discharge of heated air. The air to be heated enters at *i*, traverses tubes H, and enters space C, whence it escapes at E. The products of combustion pass up through dome-space G

into flue F. The upper part of the casing has one or more openings, *o*, or short tubes for escape of air. The upper compartment is occupied by the concentric flue S, which communicates with the flue F at the center of the compartment, and also at the periphery or outside. The pivoted damper T is located in the flue F between the inner and outer portion of flue S, to cause the products of combustion to take the circuitous and return course indicated by arrows in Fig. 2, or the direct one through passage F, thus, in large measure, controlling the degree of heat radiated by the heater, and also the rapidity of combustion.

The air to be heated in the upper compartment enters apertures *i'* in the side of the casing, and passes through it in contact with the flue F.

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

In combination with the upper compartment of case N, the concentric flues S, inlet and discharge passage F, and damper T, the latter being arranged to control the direction of the smoke-current, as shown and described.

DAVID BOYD.

Witnesses:

T. B. MOSHER,
ALEX. F. ROBERTS.