2 Sheets—Sheet 1.

J. ALBEE.

Furnace.

No. 44,497.

Patented Oct. 4, 1864.

Fig. 4.

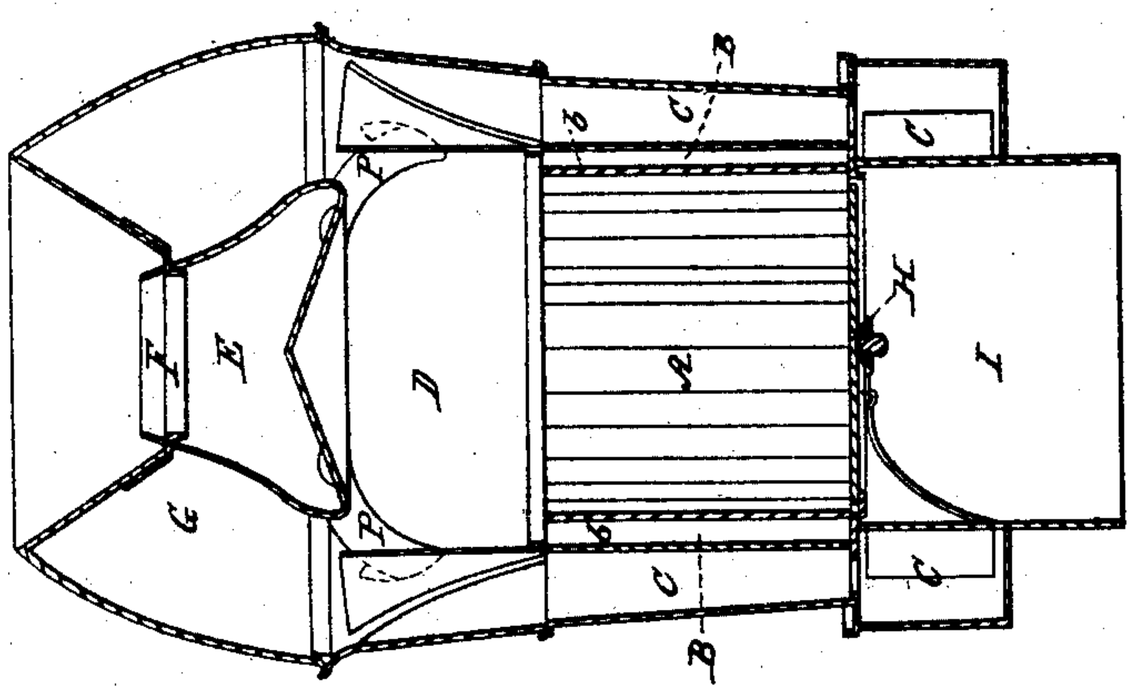


Fig. 2.

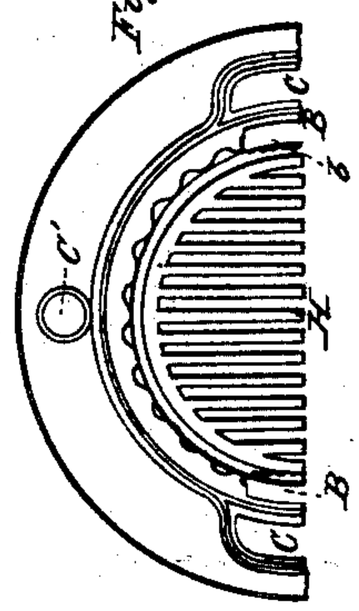


Fig. 3.

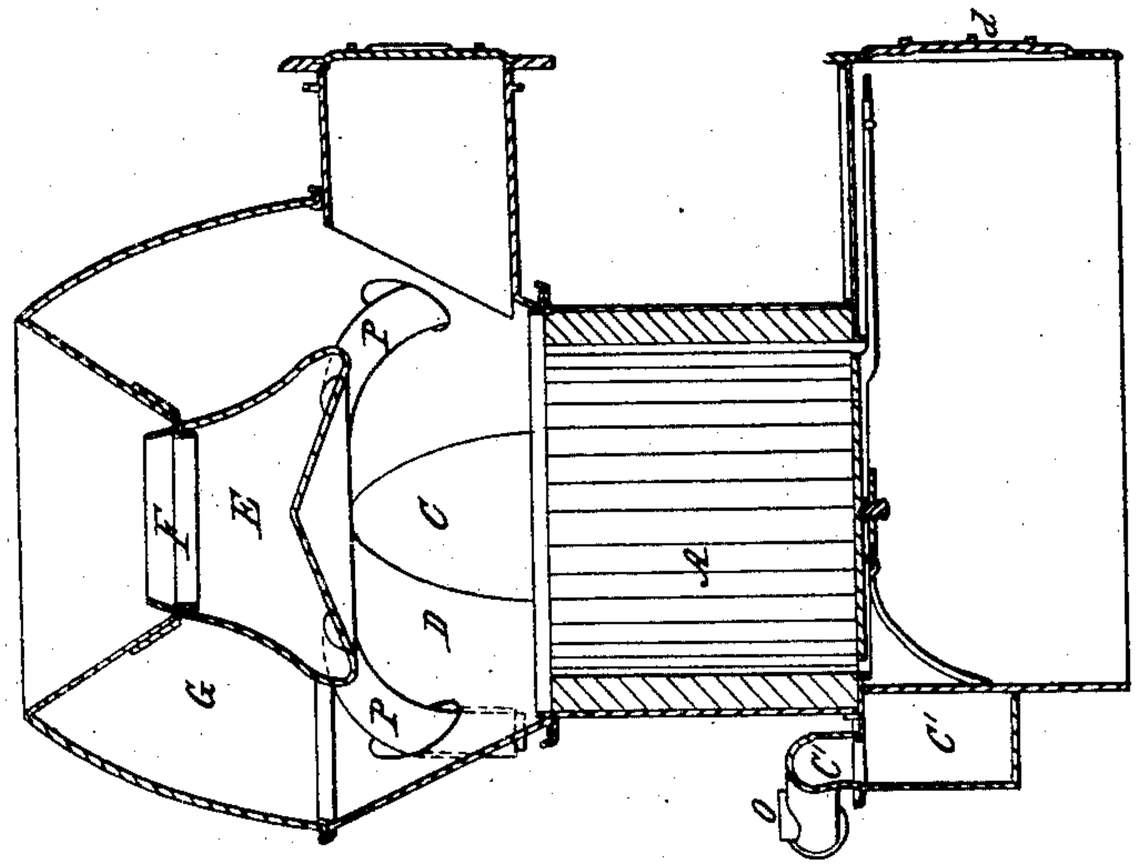
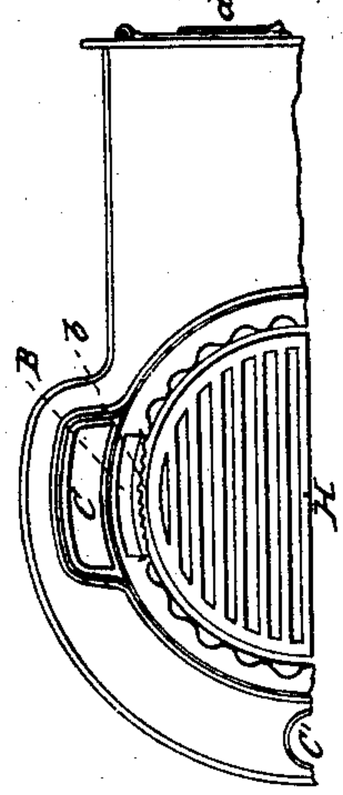


Fig. 1.



Witnesses:

Jos. H. Curtis

William Edson

Inventor:

James Albee.

2 Sheets—Sheet 2.

J. ALBEE.

Furnace.

No. 44,497. Patented Oct. 4, 1864.

Fig. 3.

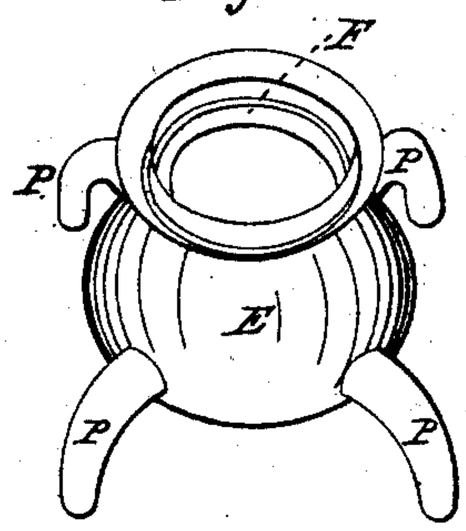


Fig. 2.

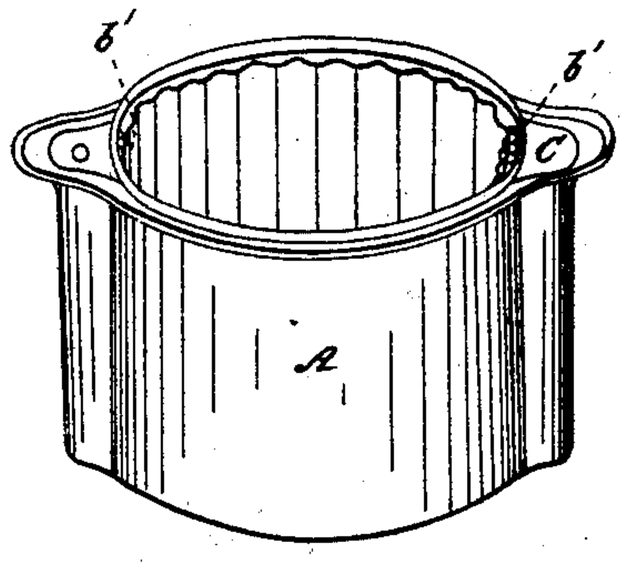
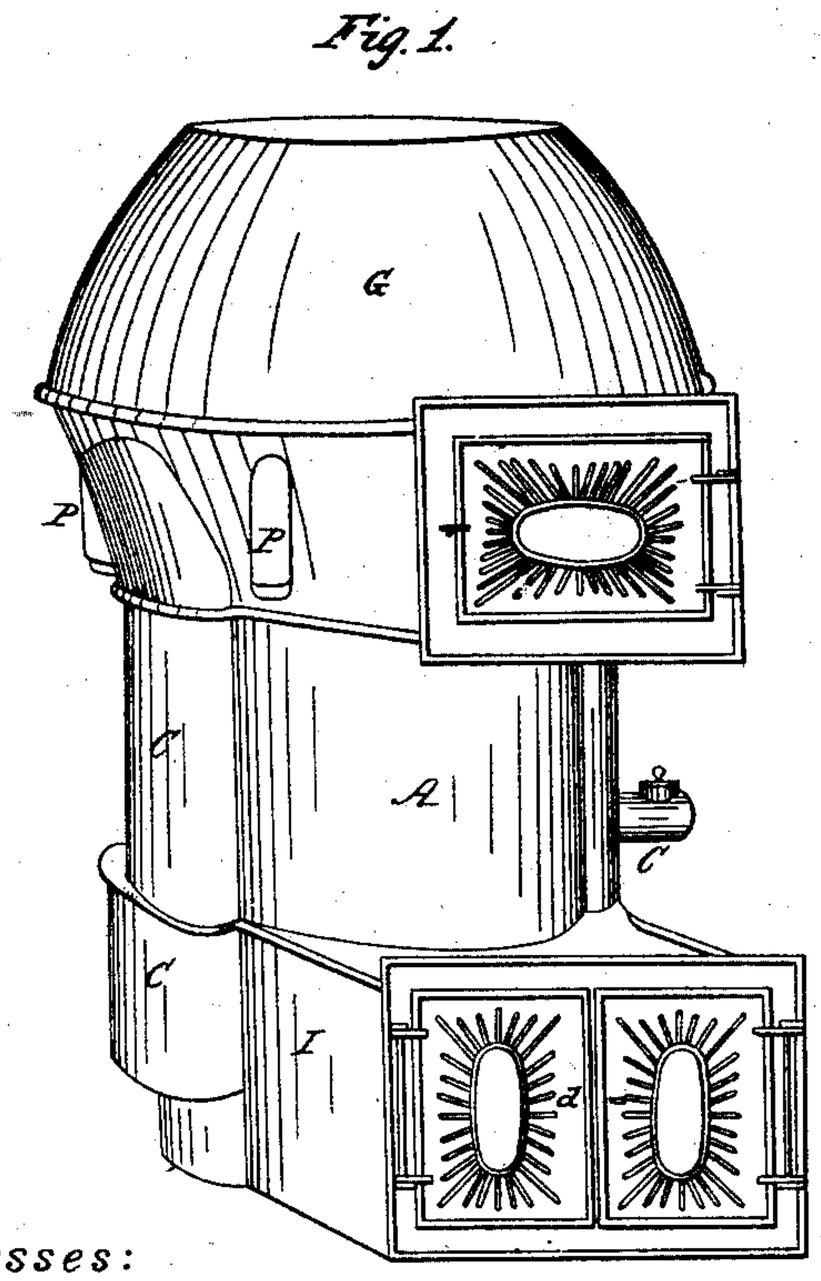


Fig. 1.



Witnesses:
Jos. A. Curtis
William Edson

Inventor:
James. Albee.

UNITED STATES PATENT OFFICE.

JAMES ALBEE, OF BOSTON, MASSACHUSETTS.

IMPROVED FURNACE.

Specification forming part of Letters Patent No. **44,497**, dated October 4, 1864.

To all whom it may concern:

Be it known that I, JAMES ALBEE, of Boston, in the county of Suffolk, in the State of Massachusetts, have invented a new and Improved Furnace; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the peculiar arrangement of the fire-pot A, the draft-tubes C C, and the cold-air recesses B B, in such a manner that the whole can be cast in one piece, thus insuring economy of construction, and additional security against the escape of gas from the inside of the fire-pot to the hot-air chamber; also, by the aid of the movable pieces *b b* and the cold-air recesses B B, prevent injury to the casting from the unequal expansion of the iron forming the interior and exterior walls of the draft-tubes C C; and in the peculiar form and arrangement of the internal radiator, E, its connecting air-ducts P P P P, and its discharge-orifice F, so that it may be cast in one piece, thus giving economy of construction, security against leakage, and a large amount of heating-surface.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In Sheet No. 1, Figure 1 is a perspective view of the furnace complete, ready to set in brick-work. Fig. 2 is a perspective view of the fire-pot. Fig. 3 is a perspective view of the internal radiator.

In Sheet No. 2, Figs. 1 and 2 are half horizontal sections through fire-pot. Fig. 3 is a vertical section from front to rear. Fig. 4 is a vertical section from side to side.

Similar letters refer to similar parts.

I, Figs. 3 and 4, Sheet No. 2, is the ash-pit; *d*, ash-pit door; H, grate, of any of the various forms.

A, Figs. 1 and 2 on Sheet No. 1, and Figs. 1, 2, 3, and 4 on Sheet No. 2, is the fire-pot, of cast-iron, fluted inside and cast solid, in combination with the draft-flues C C and the cold-air recesses B B.

C C on all the drawings, except Fig. 3, Sheet No. 1, are draft-flues, cast with and making a part of the fire-pot. Said flues connect with the base-flue C, as shown in perspective and in sections by Fig. 1, Sheet No. 1, and Figs. 1, 2, 3, and 4, Sheet No. 2, making the distance from each draft-flue C C to outlet or discharge flue O equal, thereby giving an equal radiating-surface to the pot A on all sides.

By this peculiar construction of the fire-pot I get a descending-draft furnace, with a solid cast-iron pot, whereby the whole of the heat of the coal radiates directly into the chamber in which the furnace is set. This I claim to be a great advantage over all other descending-draft furnaces, inasmuch as in my furnace the heat has only to pass through the cast-iron walls of the fire-pot, while in all others it must pass through the fire-brick lining, and also the outside casing, before it affects the air in the chamber in which the furnace is set.

b b, Fig. 2, Sheet No. 1, are movable plates fitted to slide in grooves made in sides of recesses B B, which, together with the recesses B B, form additional air-flues. The air passing through these flues serves a double purpose: First, it prevents the heat from acting on the exterior walls of the recesses B B and expanding them so much as to cause a fracture of the exterior walls or the flues C C; second, it passes through perforations at the top of plates *b b*, and, mingling with the gases from the fire, aids combustion.

D, Figs. 3 and 4, Sheet No. 2, is the gas and heating chamber.

E, Fig. 3, Sheet No. 1, and Figs. 3 and 4, Sheet No. 2, is an internal radiator, hanging directly over the fire.

P P P P are cold-air pipes, arranged to admit air into the radiator E from four sides, equally, when it becomes heated and presses out through the orifice or outlet F into the main hot-air chamber; or, if desirable, the hot air can be taken from this internal radiator by means of a separate pipe attached to outlet, F, and conveyed to any distant part of the building, independent of the heat from the main body of the furnace.

The advantage of this arrangement of an

internal radiator is, that a room situated a distance from the furnace can be warmed at the same time that rooms nearer are also being warmed.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arrangement of the fire-pot A, the draft-tubes C C, and the cold-air recesses B B in the peculiar manner described, so as to admit of the whole being cast in one piece.

2. The peculiar form and arrangement of the internal radiator, E F, the four air-ducts P P P P, and the discharge-orifice F, substantially and for the purpose as herein set forth and described.

JAMES ALBEE.

Witnesses:

JOSEPH H. CURTIS,

WILLIAM EDSON.