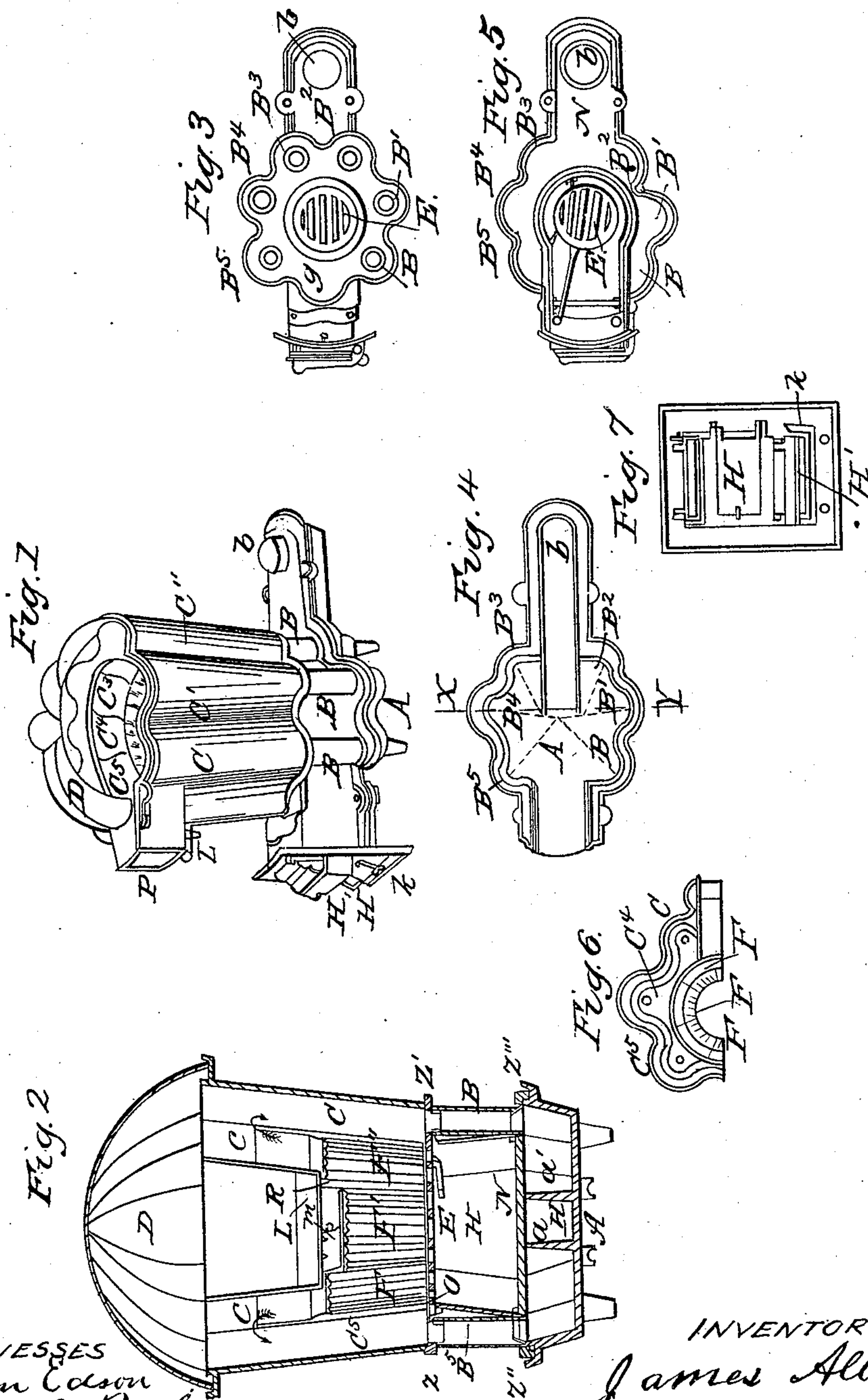


J. ALBEE.
Hot Air Furnace.

No. 68,589.

Patented Sept. 10, 1867.



WITNESSES
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JAMES ALBEE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN HOT-AIR FURNACES.

Specification forming part of Letters Patent No. 68,589, dated September 10, 1867.

To all whom it may concern:

Be it known that I, JAMES ALBEE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Furnaces; and I do hereby declare the following to be 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, first, in the peculiar construction that I give to my furnace, so that when set up the corrugations in the outside walls form with the segments of the linings descending flues; second, in so constructing a sub-flue that the draft through the descending flues that enter into it shall be equalized; third, in the arrangement for admitting air into the combustion-chamber for the purpose of igniting the gases.

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

Figure 1 is a perspective view of my improved furnace, the brick-work being omitted. Fig. 2 is a vertical section through the center on the line X Y, Fig. 4, looking toward the front. Fig. 3 is a horizontal section on the line Z Z', Fig. 2. Fig. 4 is a plan of the sub-flue. Fig. 5 is a horizontal section on the line Z'' Z''', Fig. 2. Fig. 6 is a half horizontal section, showing the lining and the descending flues. Fig. 7 is an elevation of the ash-pit and draft-doors.

C C' C'' represent the fire-chamber, which, in section, is corrugated or fluted, as shown in Fig. 6. This chamber rests upon a plate, O, Figs. 2 and 3, which plate serves to form a base for it and the linings, and is in the same plane as the grate.

The plate N, Figs. 2 and 5, forms the bottom of the ash-pit, and is connected to the plate O by means of the vertical walls of the ash-pit, as represented in Figs. 1 and 2, and by the pipes B B' B'', &c.

The casting A, Figs. 1, 2, and 4, forms a sub-flue under the ash-pit, into which all the descending-flues enter, and from which the products of combustion are drawn off through the draft-pipe b.

H, Figs. 1, 2, and 7, represents the ash-pit door. H', Figs. 1 and 2, represents a small door opening into the sub-flue. This door may be held partly or entirely open by means of a toggle or dog, k, Figs. 1 and 7. The object

of this door is to regulate the draft by admitting more or less air directly to the draft-pipe B, thus checking the tendency of the air to force itself into the combustion-chamber. P, Figs. 1 and 2, represents the fuel-door.

L, Figs. 1 and 2, represents a small pipe which conducts air to an air-receptacle, R, Fig. 2. This air-receptacle is on a level with the top of the lining of the fire-pot, and has small perforations m m, Fig. 2, through which air can enter and unite with the gases to insure their complete combustion.

The upper parts of the descending flues C B C' B' C'' B'', &c., are formed by placing the lining against the inner projections of the corrugations of the fire-chamber, as shown in Figs. 1 and 6, so that the ascending currents from the fire can follow the direction of the arrows c c', Fig. 2, and thus pass down the corrugations, and in back of the lining of the fire-pot into the flues B B', &c., and from thence into the sub-flue A, Fig. 4. The sub-flue A has two inwardly-projecting wings, a a', as shown in Fig. 4, the object of which is to direct the heated products of combustion to the center of the flue, so that the lines of draft indicated by the dotted lines, Fig. 4, shall all be nearly equal, thus securing an even distribution of the heat over all the radiating parts of the furnace.

By forming the separate draft-flues by the corrugations of the casings and the linings, as shown, I get an even distribution of heat over all parts of the furnace, and also force the heated products of combustion against the external parts of the furnace.

By adopting the corrugated form for my furnace body, I add greatly to the heating-surface exposed, and thus enhance the heating-power of the furnace.

Having thus described my invention, I will now proceed to set forth my claim.

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

Arranging the lining or fire-pot in relation to the corrugations of the casing in such a manner that the descending draft flues C C' C'', &c., are formed substantially in the manner and for the purpose set forth.

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Witnesses:

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