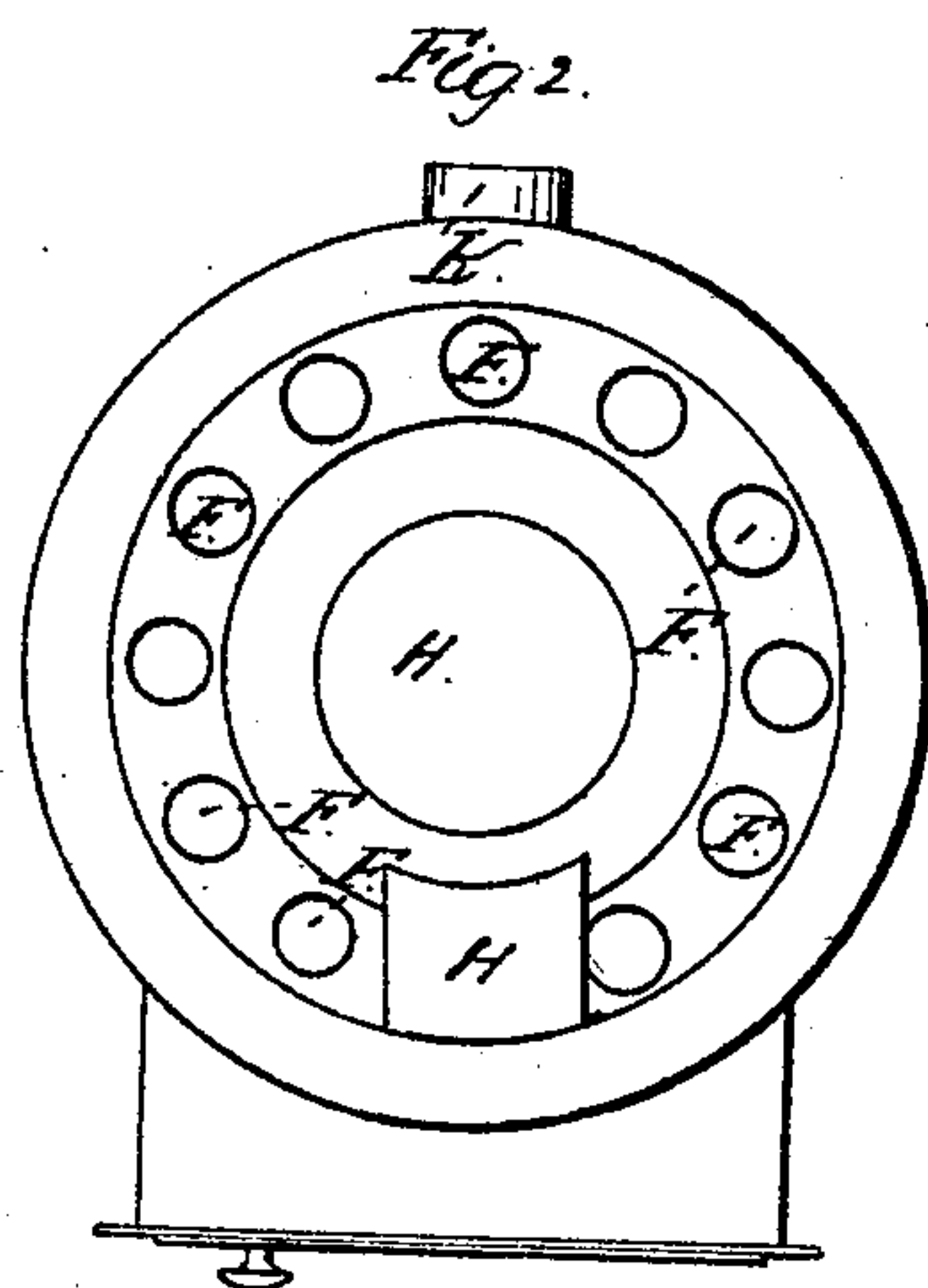
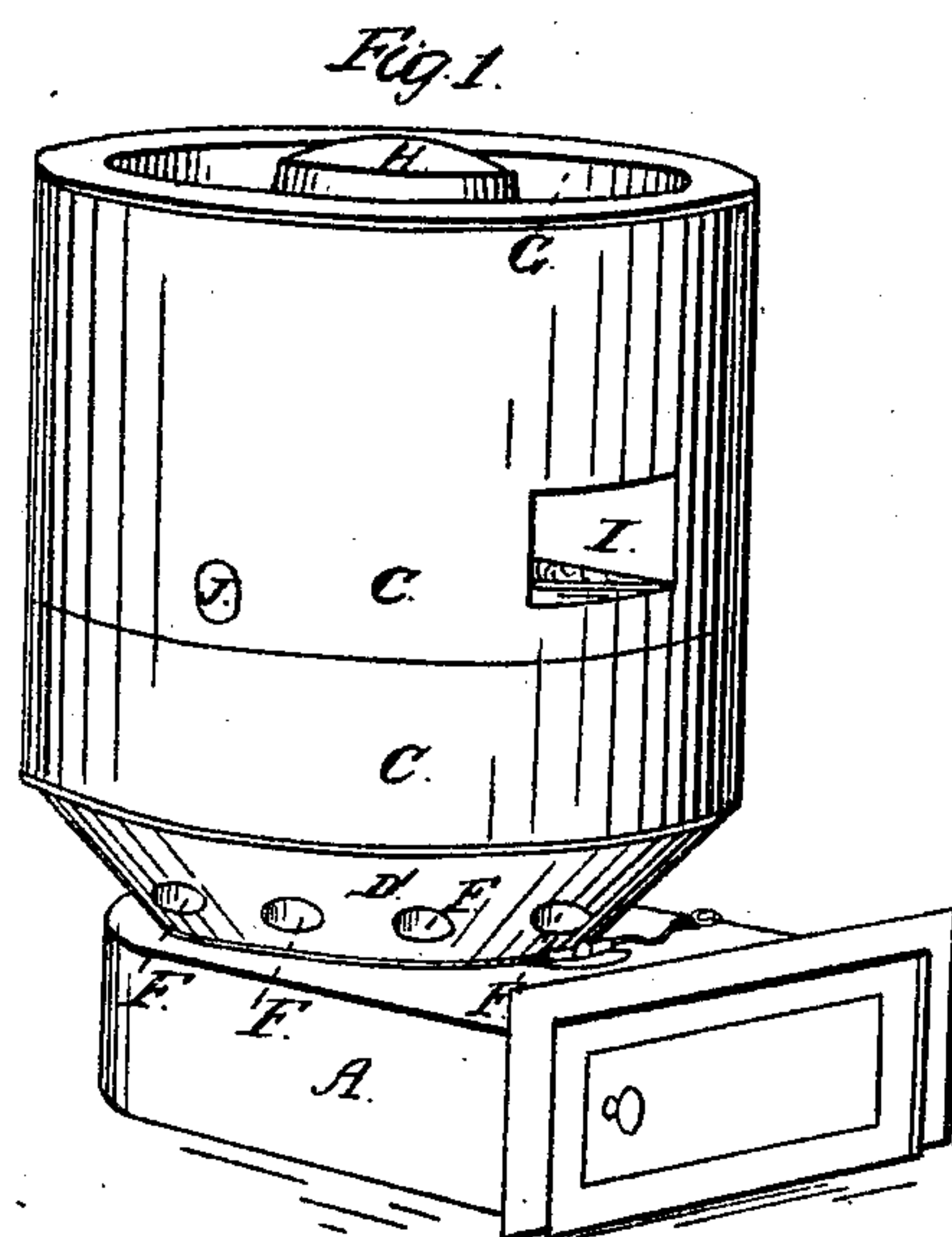


L. W. BROWN.  
Hot Air Furnace.

2 Sheets—Sheet 1.

No. 102,086.

Patented April 19, 1870.



*Witnesses.*  
*D. L. Hounshew*  
*J. H. Burridge*

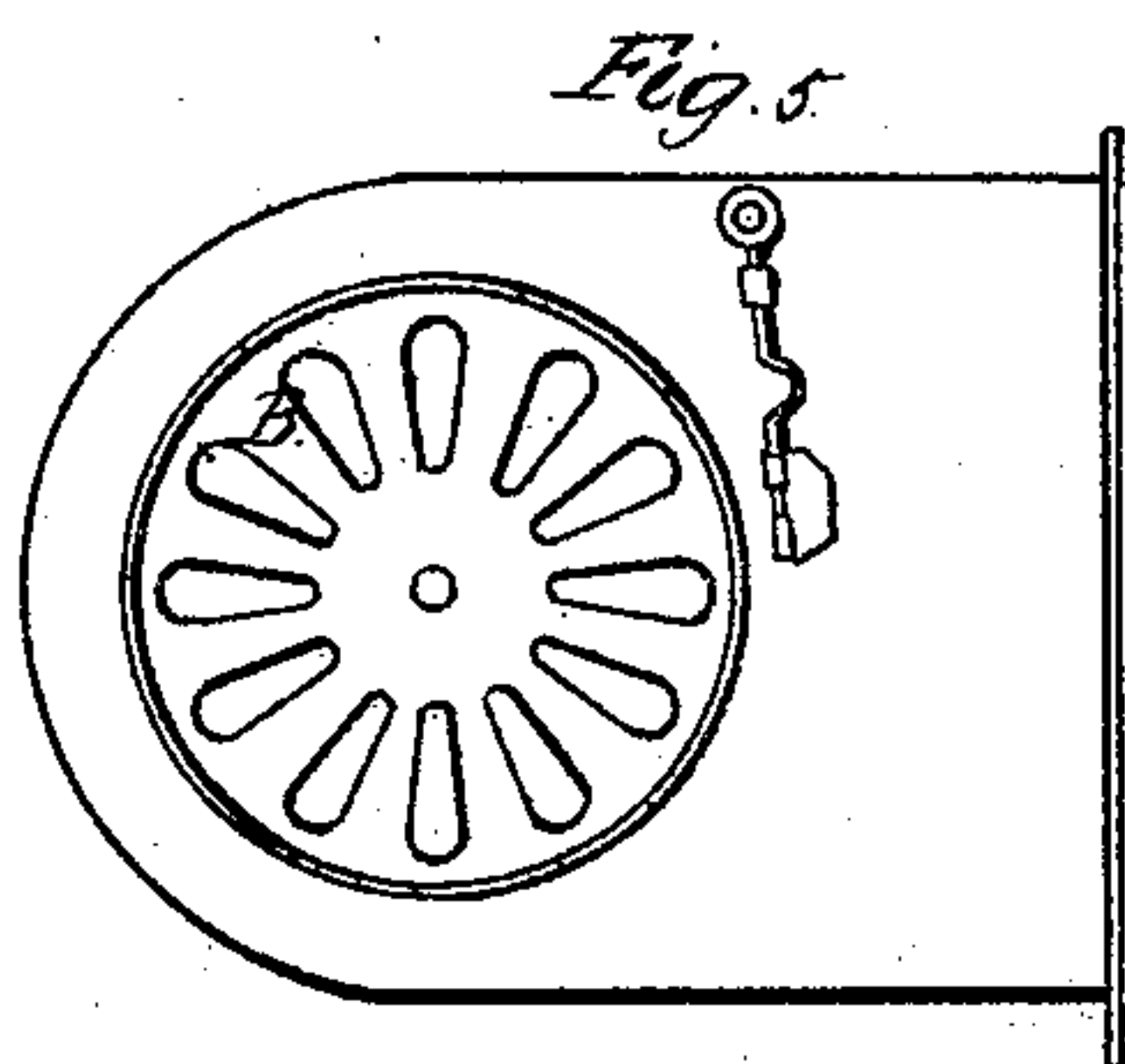
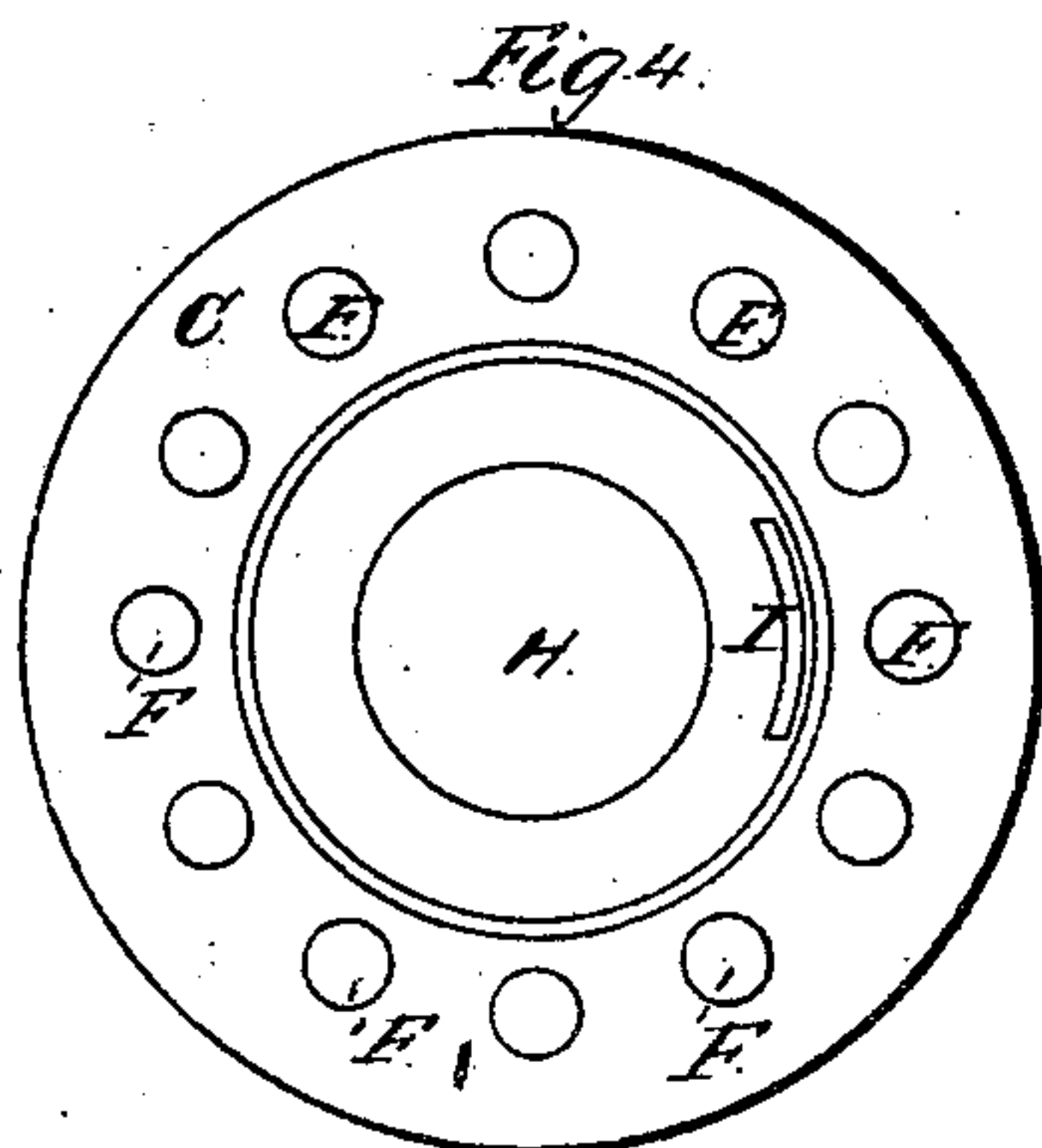
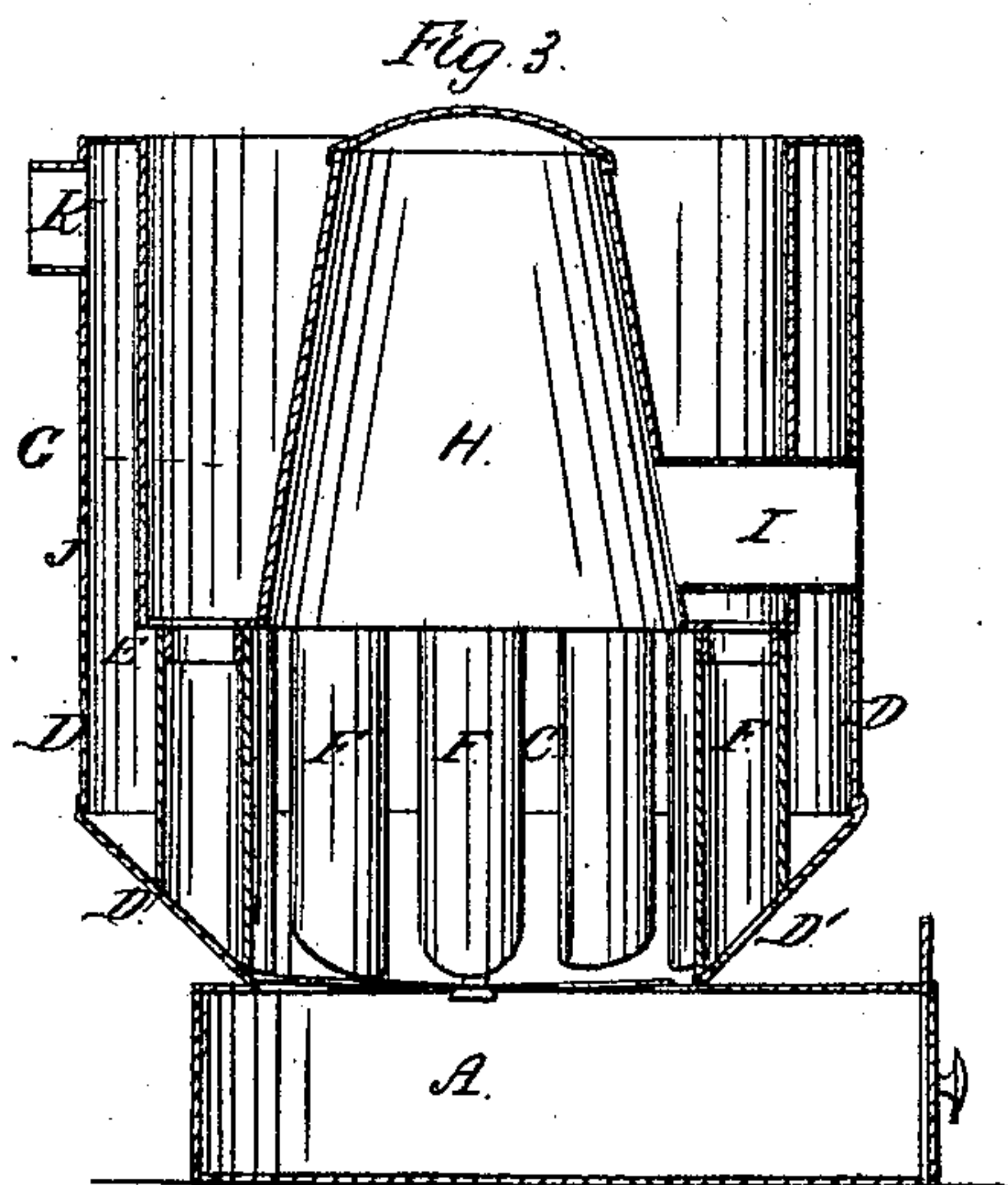
*Inventor*  
*Lorenzo W. Brown*  
*Per Burridge & Co.*

L. W. BROWN.  
Hot Air Furnace.

2 Sheets—Sheet 2.

No. 102,086.

Patented April 19, 1870.



*Witnesses:*  
D. L. Humphrey  
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*Inventor*  
Lorenzo W. Brown  
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# United States Patent Office.

LORENZO W. BROWN, OF CLEVELAND, OHIO.

Letters Patent No. 102,086, dated April 19, 1870.

## HOT-AIR FURNACE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, LORENZO W. BROWN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and improved Hot-air Furnace; and I do hereby declare that the following is a full, clear, and complete description of the same, reference being had to the accompanying drawings making part of this specification, in which drawings—

Figure 1 is a perspective view of the furnace.

Figure 2, a view of the inside from the top.

Figure 3, a vertical transverse section.

Figure 4, a view of the inside from the bottom.

Figure 5, a top view of the grate and ash-pit.

Like letters of reference refer to like parts in the several views.

### Objective.

This invention relates to a hot-air furnace for heating buildings, &c., the peculiar construction of which is such that the sides of the fire-box or pot thereof consists of a series of tubes forming a tubular grate around the fire, which tubes are so arranged as to extend from the hot-air chamber above down to the furnace-grate below, thence communicating with the outside of the furnace to receive cold air, thereby producing a larger heating and radiating surface, as hereinafter more fully described.

### Descriptive.

In fig. 1—

A represents the ash-pit of the furnace, of which B, fig. 5, is the grate.

Secured to the top of said pit is the furnace C, consisting of an outer cylindrical shell, D, which also forms the outer wall of the flue E, fig. 3.

F, fig. 3, is a series of tubes arranged around the inside of the wall of the furnace a short distance therefrom, the lower ends of which extend down close to the grate and through the inclined base D', and communicate with the outside of the furnace, as seen in fig. 4, whereas the upper ends open into an air-chamber, G, fig. 3, in the center of which stands a hollow cone, H, closed at the top, but open at the base immediately over the fire, and into which the heat ascends.

I, fig. 3, is the mouth of the furnace for the introduction of fuel;

J are flues for conducting cold air into the chamber G; and

K, the smoke-flue.

### Operative.

The operation of this furnace is as follows:

The furnace, as shown in the drawing, is inclosed in masonry or by other material in the usual manner, exposing the door of the ash-pit and mouth of the furnace for access thereto.

It will be obvious that by encircling the fire-pot with a series of tubes, as above described, and placing them near to each other, thereby forming a side grate or open wall around the fire, obtains to the furnace an increase of heating surface, so that the current of air entering the chamber G through the series of pipes, is heated more rapidly than if passed around the furnace to the chamber through a single open space with the inner wall only exposed to the fire. Also, the hollow cone into which the heat, directly from the fire, ascends, and which, being surrounded by the air in the chamber, partially heated in its passage through the tubes, is further heated by its contact with the cone to the degree necessary for warming the rooms into which it is conveyed by eduction pipes or flues proceeding from the top of the furnace in the usual way.

By this device a great saving is made in the consumption of fuel, as the cold air from the outside is exposed to the large heating surface of the pipes, and will therefore be more rapidly heated to a higher degree of temperature, with a given amount of fuel, than can be in the ordinary hot-air furnace.

The pipes, on being burned out, can be easily removed and new ones inserted.

### Claim.

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

The arrangement of the air-pipes F and fire-pot C, in combination with the air-chamber G, hollow cone H, and flue E, in the manner substantially as and for the purpose herein described.

LORENZO W. BROWN.

Witnesses:

W. H. BURRIDGE,  
J. H. BURRIDGE.