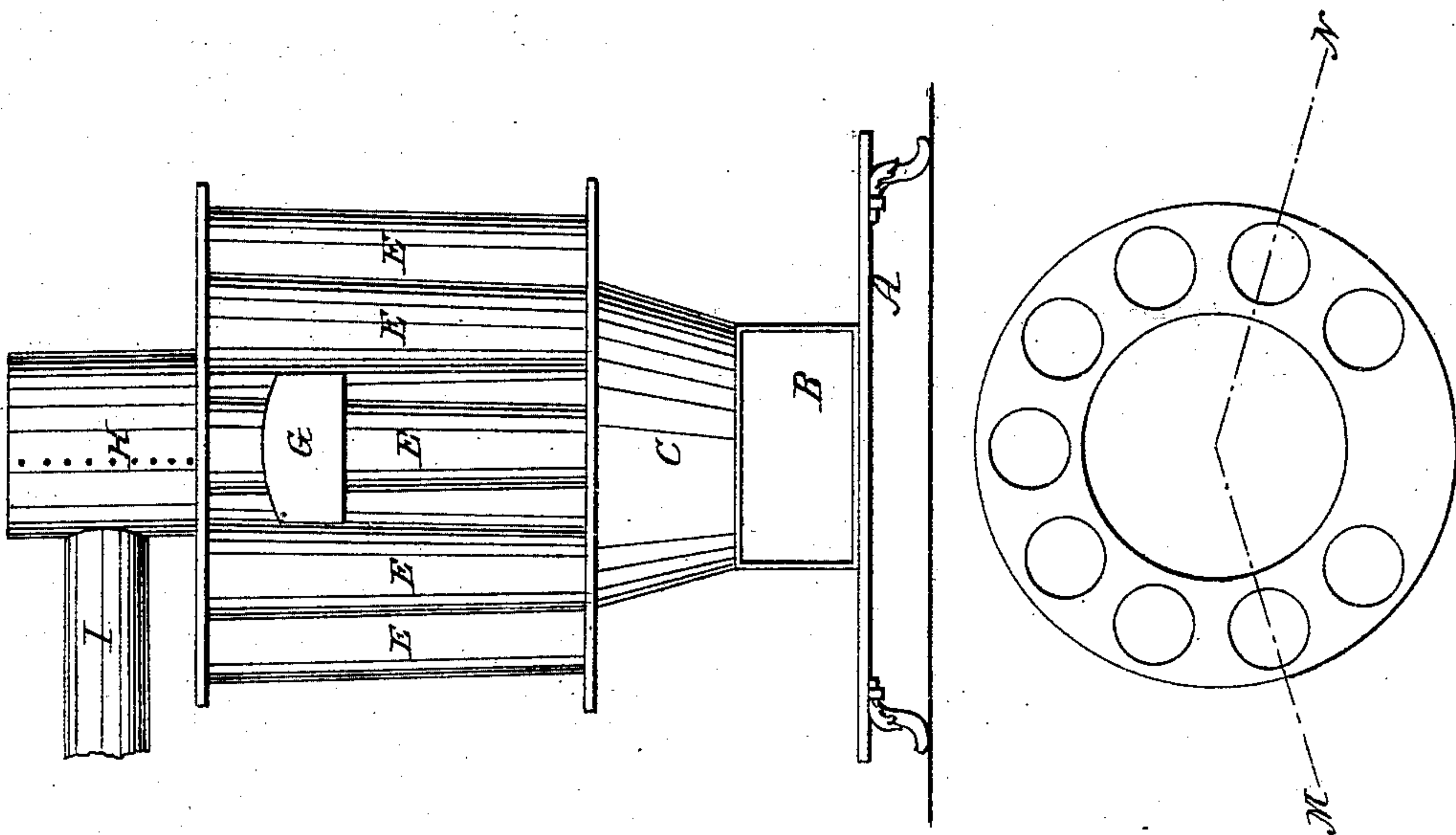
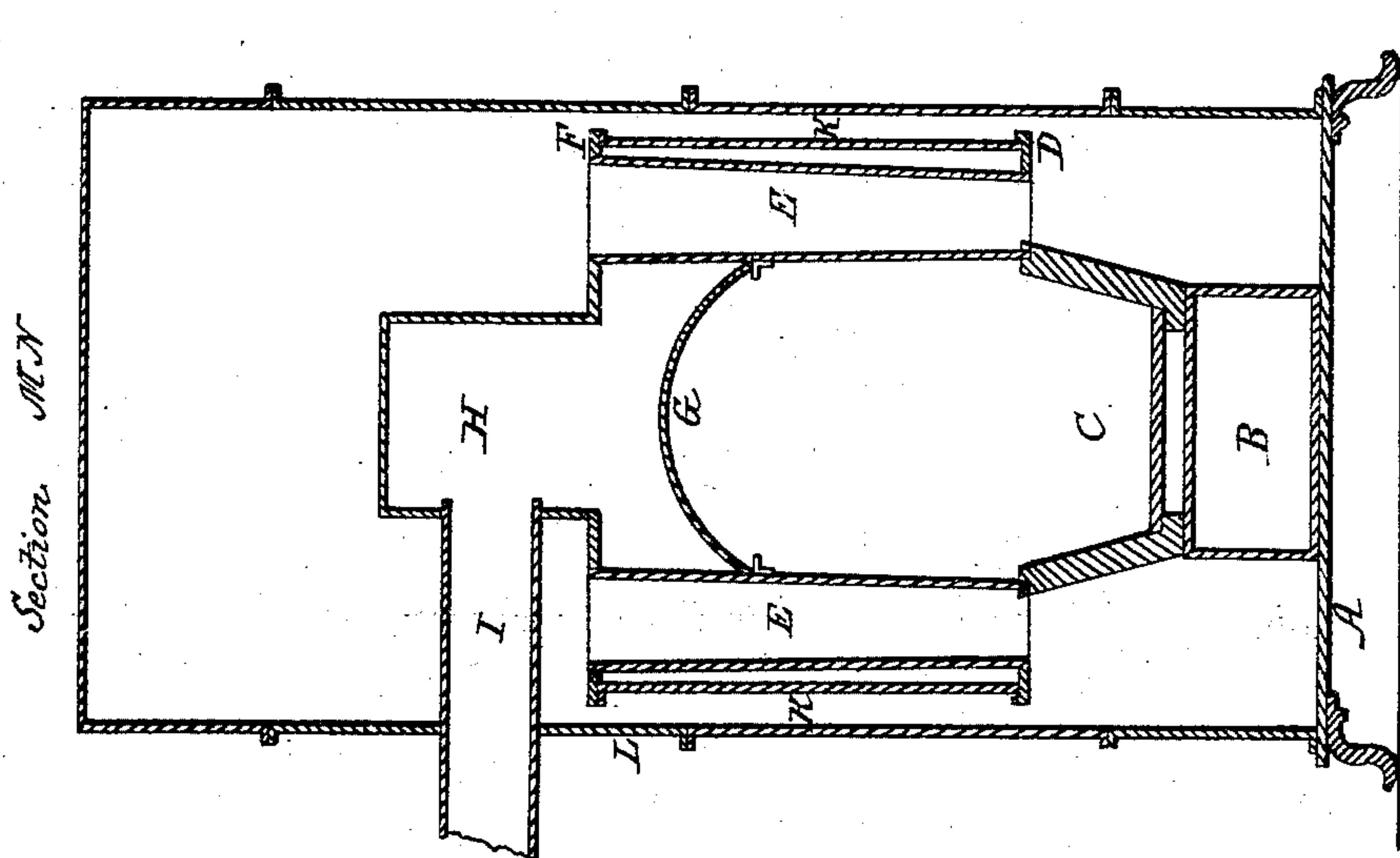


B. BROWNELL.

Hot Air Furnace.

No. 58,057.

Patented Sept. 18, 1866.



Witnesses.
R. H. Mason.
Samuel Ash.

Inventor.
Benjamin Brownell.

UNITED STATES PATENT OFFICE.

BENJAMIN BROWNELL, OF CHICAGO, ILLINOIS.

HOT-AIR FURNACE.

Specification forming part of Letters Patent No. 58,057, dated September 18, 1866.

To all whom it may concern:

Be it known that I, BENJAMIN BROWNELL, of Chicago, in the county of Cook, in the State of Illinois, have invented a new and Improved Soft-Coal Hot-Air 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 a gradual enlargement of the radiating flues from bottom to top on the scale of five-eighths of one inch to one foot, thereby insuring a larger amount of hot air than would be made in straight flues, and the placing a dome-shaped casting in the center of the flues, directly over the fire-pot, two-thirds of the distance from the bottom to the top plate, which compels the heat to pass outside and around the flues before passing into the smoke-drum, and also causes the burning of a great part of the soot and gas arising from the soft coal by forcing them back into the fire.

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

My furnace has a cast-iron base, (marked A,) with openings to admit cold air. Resting on this is a cast-iron ash-pit, (marked B.) On this rests the fire-pot, also of cast-iron, (marked C.) Fitting closely on the top of fire-pot rests the cast-iron bottom plate, (marked D,) to which radiating flues, (marked E,) constructed

of heavy wrought-iron and open at both ends, are attached by collars. The cold air enters at bottom of these flues, and is heated while passing through into the hot-air chamber above. The flues are also attached by collars to the cast-iron top plate, (marked F.) Directly over the fire-pot, two-thirds of the distance from bottom to top plate, resting on wrought-iron lugs riveted to the flues, is placed a dome-shaped iron casting, (marked G.) Over this casting, fitting closely above the top plate, is the sheet-iron smoke-drum, (marked H,) which receives the smoke, and from which it is passed through the smoke-pipe (marked I) to the chimney. Around the radiating flues is placed a heavy wrought-iron case, (marked K,) attached by flanges to the top and bottom plates. The whole is inclosed in a galvanized-iron case, (marked L,) composed of four sections, connected by cast-iron rings, the upper part of which comprises the hot-air chamber, to which hot-air pipes are attached. The feed-door to fire-pot is placed on this case, being also connected by cast-iron neck to the inner case.

What I claim as my invention is—

The gradually-enlarged flues E, arranged and combined with the dome-shaped casting G in a hot-air furnace, substantially as and for the purposes herein set forth.

BENJAMIN BROWNELL.

Witnesses:

J. A. LYNDON,
R. H. MASON.