

(No Model.)

2 Sheets—Sheet 1.

J. F. PEASE.

APPARATUS FOR HEATING BUILDINGS.

No. 248,948.

Patented Nov. 1, 1881.

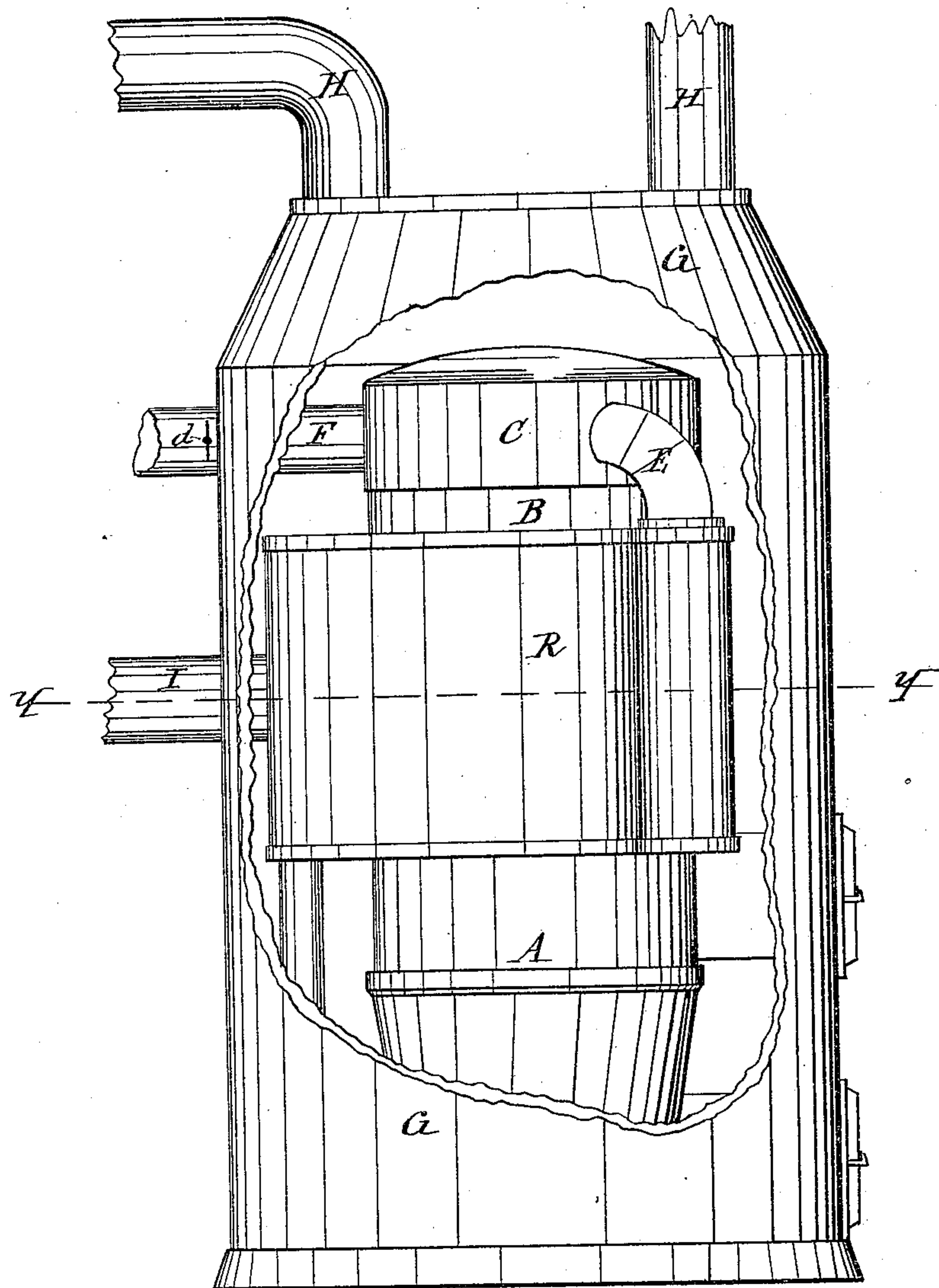


Fig. 1

WITNESSES:

C. Bendixon.

Wm. L. Raymond

INVENTOR:

John F. Pease

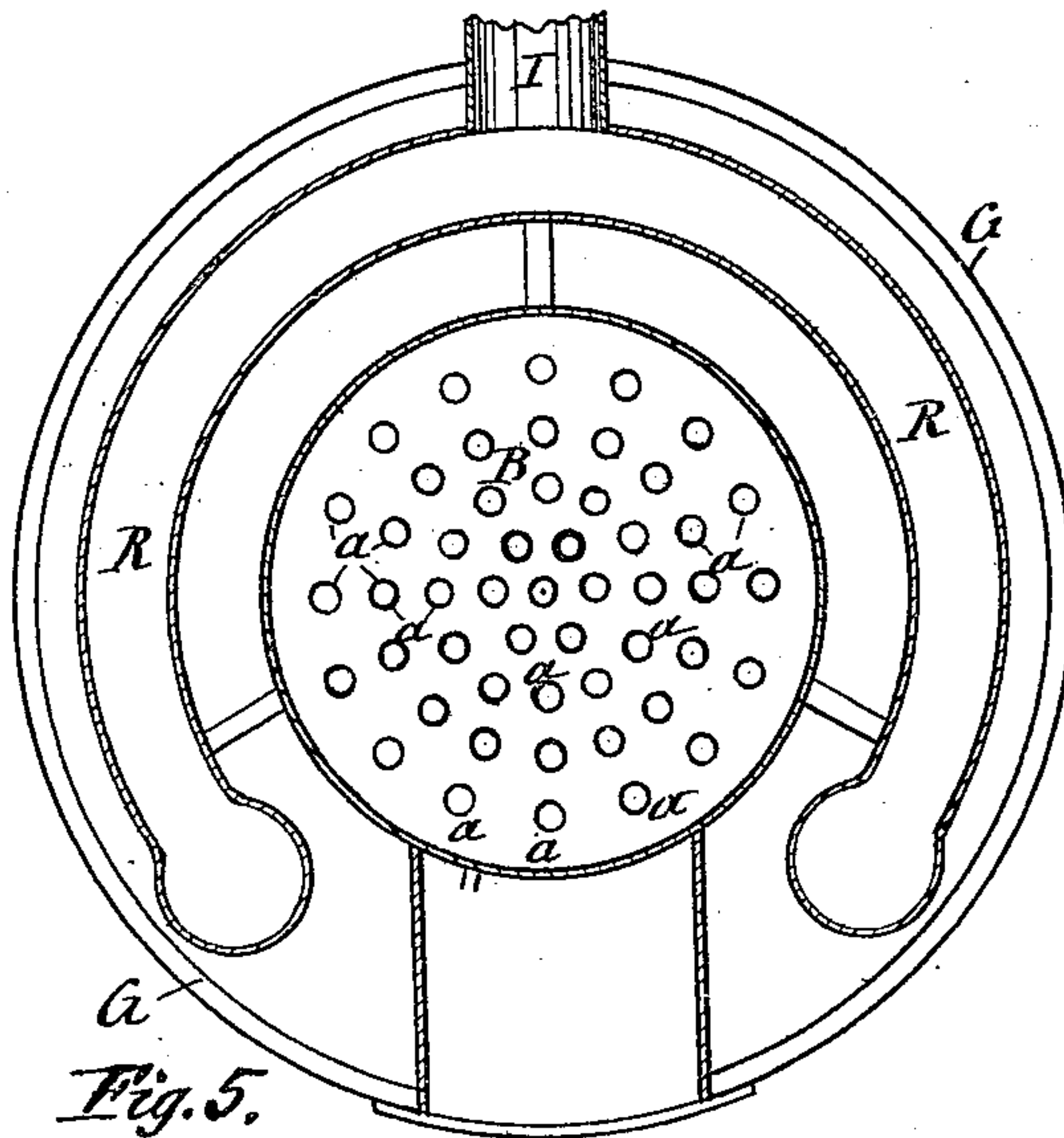
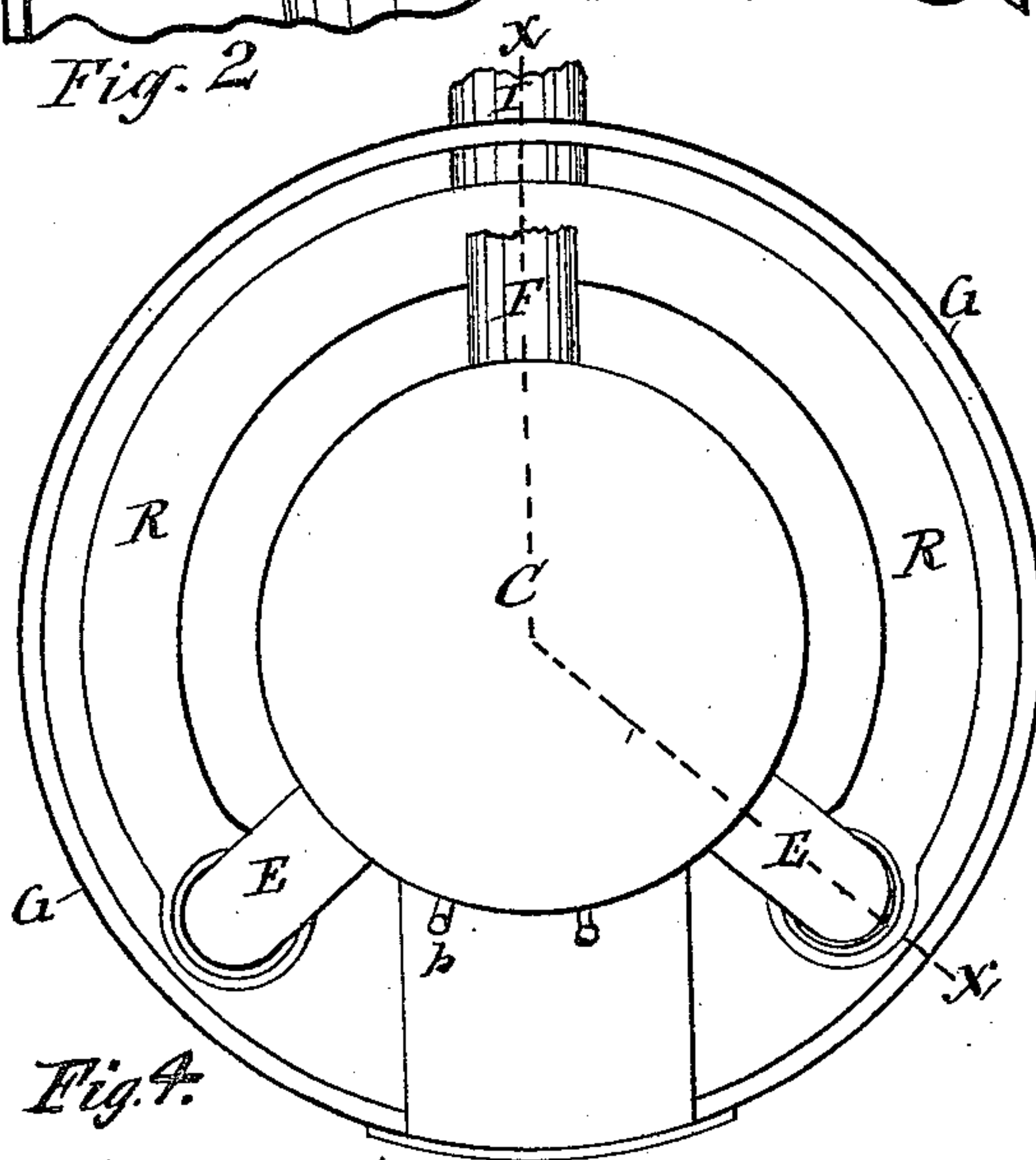
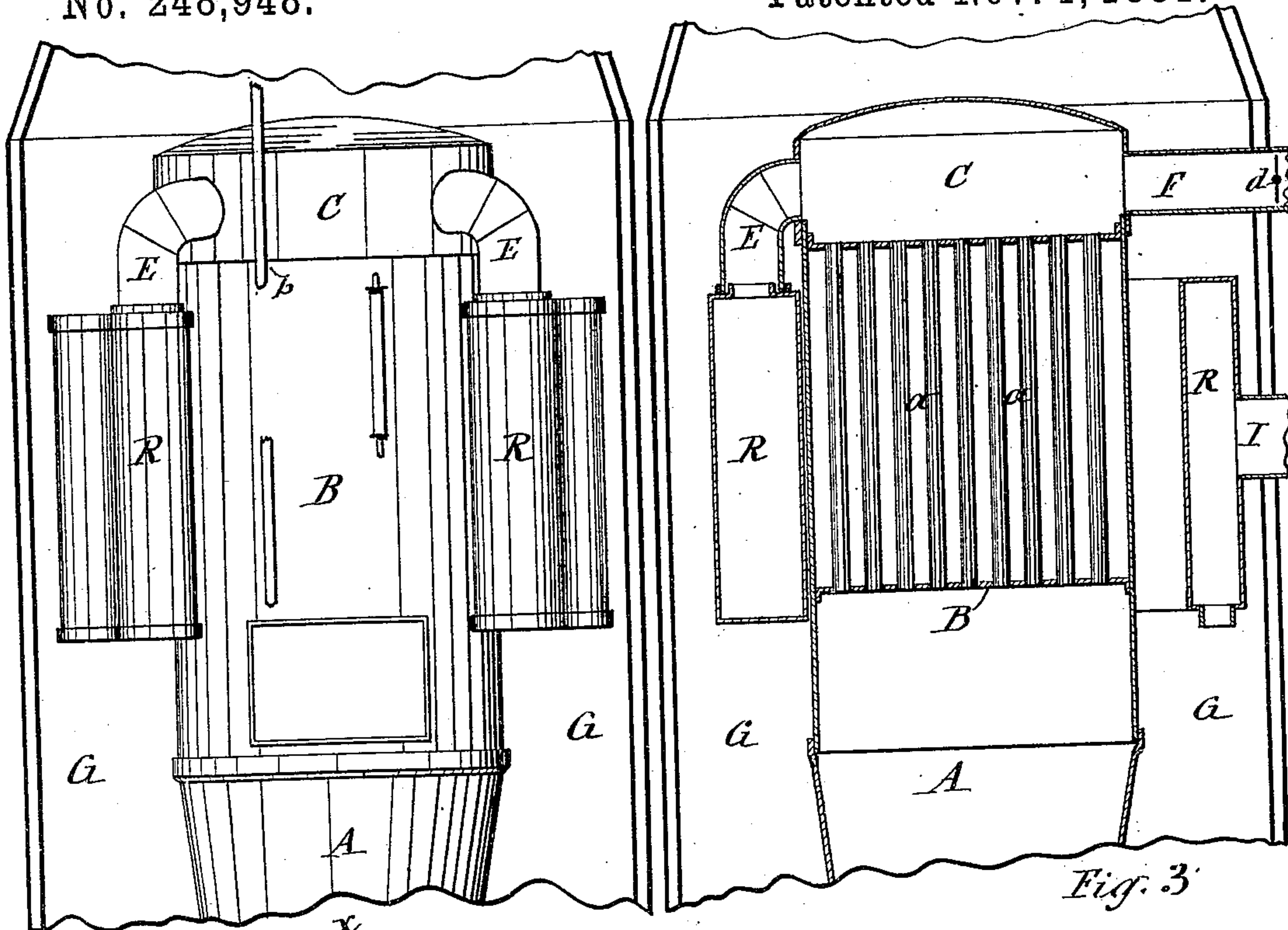
per Huell, Laass & Key  
attys—

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per Hull, Laess & Hey  
Attys



# UNITED STATES PATENT OFFICE.

JOHN F. PEASE, OF SYRACUSE, NEW YORK, ASSIGNOR OF ONE-HALF TO  
WILLIAM ALLEN BUTLER, OF SAME PLACE.

## APPARATUS FOR HEATING BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 248,948, dated November 1, 1881.

Application filed February 18, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN F. PEASE, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful  
5 Improvements in Apparatus for Heating Buildings, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates more particularly to  
10 the hot-air furnace for which I have obtained Letters Patent No. 192,837, dated July 10, 1877.

The object of this invention is to obtain a greater range of distribution of heat from said furnace, and adapt the same for heating extensive buildings and apartments not accessible by  
15 hot-air ducts; and to that end the invention consists, essentially, in the combination, with a case provided with air-inlets at its base and with hot-air ducts at or near its top, of an upright tubular boiler mounted on a fire-box and  
20 tapped by steam-pipes adapted to be extended through the building to be heated, a combined radiator and smoke-box applied to the upper end of the boiler and communicating direct with  
25 the boiler-tubes, a radiator of crescent shape arranged around the exterior side of the boiler, with an air-passage between them, smoke-flues extended, respectively, from the smoke-box to the ends of the crescent radiator, exit smoke-  
30 flues extended, respectively, from the radiator and smoke-box and having a damper for diverting the products of combustion from the direct-exit flue to that connected with the crescent radiator, all combined and arranged in the  
35 first-mentioned case substantially in the manner hereinafter more fully described, and specifically set forth in the claim, by which arrangement such apartments of the building as cannot be conveniently reached and heated by the  
40 hot-air ducts of the furnace can be heated by steam-pipes extended from the steam-boiler combined with the furnace.

In the accompanying drawings, Figure 1 is a side elevation of my improved heating apparatus, with a portion of the casing broken away  
45 to illustrate the internal arrangement of the invention. Fig. 2 is a front view of the furnace and boiler; Fig. 3, a vertical section on line *xx*; Fig. 4, a top view of the furnace and boiler, and  
50 Fig. 5, a horizontal transverse section on line *yy*.

Similar letters of reference indicate corresponding parts.

A represents the fire-pot, upon which I have placed a combustion-chamber in the form of a dome, which, by means of flues near its base, 55 communicates with a radiator, R, made crescent shape and provided with an exit smoke-flue, as shown in the drawings hereto annexed. The heat generated by the described furnace is absorbed by the current of air which is admitted at the base of the case G inclosing the  
60 furnace, and the air thus heated is conveyed to the various apartments of the building by ducts H H, extended from the top of the case in the usual manner. Since the extension of said hot-  
65 air ducts to the variously-located apartments is frequently difficult, expensive, and in very large buildings almost impracticable, the use of hot-air furnaces has been limited to warming dwellings of moderate size. To obviate these  
70 difficulties I combine with the aforesaid hot-air furnace a steam-boiler in the following manner, to wit:

B denotes a steam-boiler, mounted on the fire-pot A and having vertical flues *a a*, through  
75 which the products of combustion pass direct to a smoke-box, C, applied to the upper end of the boiler. Said smoke-box has extended from its sides smoke-flues E E, which are deflected downward and connected, respectively, with  
80 the ends of the crescent-shaped radiator R, which is arranged around the exterior side of the boiler, and with an air-passage between them, and is provided at the rear with an exit-flue, I. The products of combustion from the  
85 fire-box A are thus caused to pass through the flues of the boiler B into the superposed smoke-box C, from whence they are conducted to the radiator R, and are finally allowed to escape through the exit-flue I into the chimney. 90

F is another exit smoke-flue, by which the smoke-box communicates direct with the chimney, said flue being provided with a damper, by means of which said direct communication  
95 can be closed and the products of combustion forced to take the circuitous course through the radiator R, before described.

The damper *d* may be opened so as to increase the draft when first starting the fire. The smoke-box C over the boiler B, being im- 100

pinged upon by the products of combustion and deflecting and retarding the current of the same, is thus made to serve as an additional radiator, which augments the heating capacity of the hot-air furnace. Such apartments of the building as cannot be conveniently reached by the hot-air pipes H may be heated by steam-pipes *b*, extended in the usual manner from the boiler to the radiators located in said apartments.

I do not claim, broadly, the combination of a steam-boiler with a hot-air furnace, as I am aware the same is not new; but

What I do claim as my invention is—

The combination, with the case G, provided with air-inlets at its base and with hot-air ducts H H at or near its top, of the fire-box A, the upright tubular boiler B, mounted on said fire-box and provided with steam-pipes *b*, the combined radiator and smoke-box C, applied to the upper end of the boiler and communicating di-

rect with the flues of the boiler, the radiator R, of crescent shape, arranged around the exterior side of the boiler with an air-passage between them, the smoke-flues E E, extended, respectively, from the smoke-box C to the ends of the crescent radiator R, the exit smoke-flues I and F, extended, respectively, from the radiator R and smoke-box C, and the damper *d* in the flue F, all combined and arranged within the case G substantially in the manner described and shown.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 16th day of February, 1881.

JOHN F. PEASE. [L. S.]

Witnesses:

FRANK W. WAGGONER,  
C. BENDIXON.