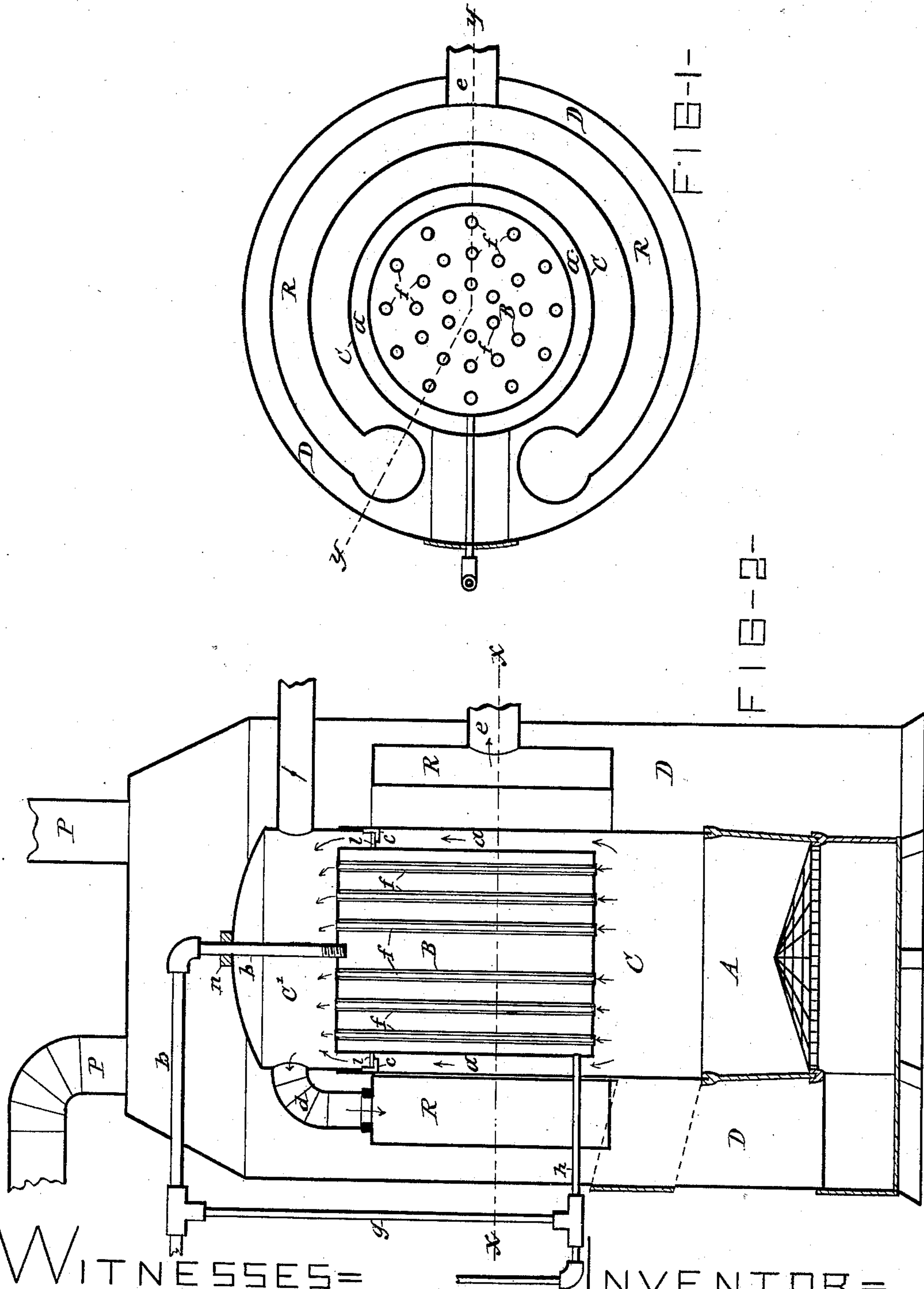


(No Model.)

J. F. PEASE.  
HEATING APPARATUS.

No. 257,183.

Patented May 2, 1882.



WITNESSES=

*Comd C. Raymond*  
*C. H. Duell*

INVENTOR=

*John F. Pease*  
*per Duell, Laessle & Hay*  
*his Attorneys*

# UNITED STATES PATENT OFFICE.

JOHN F. PEASE, OF SYRACUSE, NEW YORK.

## HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 257,183, dated May 2, 1882.

Application filed September 14, 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 Improvements in Heating Apparatus, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention is designed as a further improvement on the furnace for which I have obtained Letters Patent No. 192,837, dated July 10, 1877; and it consists in a peculiar arrangement of a steam-boiler located inside of a combustion-chamber which forms around the vertical sides of the boiler a fire-passage leading to the smoke-box over the top of the boiler, and thus increasing the heating-surface of both the boiler and the furnace, all as hereinafter more fully described, and specifically set forth in the claims.

My present invention also consists in an improved means of securing the smoke-box to the top of the combustion-chamber and passing the steam-pipe from the boiler out of the combustion-chamber, all as hereinafter more fully described.

In the annexed drawings, Figure 1 is a horizontal section of my improved heating apparatus, taken on line *xx*; and Fig. 2 is a vertical section of the same on line *yy*.

Similar letters of reference indicate corresponding parts.

A denotes the fire-pot of a hot-air furnace, which latter consists of a combustion-chamber, C, mounted upon the fire-pot, and having at or near its top pipes *d*, communicating with a radiator, R, which surrounds the combustion-chamber, the products of combustion passing from the fire-pot through the combustion-chamber to the radiator R, from whence they escape to the chimney by an exit-flue, *e*. A casing, D, built around the aforesaid apparatus collects the heat radiating therefrom, and pipes P, extended from said casing, convey the heat to the apartments of the building to be heated.

It having been found difficult to conduct hot air through extensive buildings and to remote apartments, I have combined with the aforesaid hot-air furnace a steam-boiler from whence steam can be conveyed to the most remote apartments of the building by means of

suitable pipes. It is chiefly the arrangement of said steam-boiler and its connection with the hot-air furnace to which my present improvement pertains.

Referring to the annexed drawings, B denotes the steam-boiler, which I place inside of the combustion-chamber C, directly over the fire-pot A, and support it in its position by lugs *l*, projecting from the exterior of the boiler and resting on a ledge, *c*, formed on the interior of the combustion-chamber by an angle-iron secured thereto. The boiler B is of sufficiently smaller circumference than the combustion-chamber C to produce an annular space, *a*, around the boiler, said space affording a passage for a portion of the products of combustion from the fire-pot directly to the smoke-box C' above the boiler. Said smoke-box also communicates directly with the fire-pot A by flues *ff*, extended vertically through the boiler. By the passage of the products of combustion around the boiler in the manner shown and described said boiler becomes completely enveloped in the products of combustion, and the latter are more thoroughly diffused and caused to more effectually impinge the sides of the combustion-chamber, thereby producing a greater radiation of heat from the latter.

The smoke-box C', I fit to the interior of the upper end of the combustion-chamber C and bring it to rest on the ledge *c*, before described.

The steam-pipe *b*, which conveys the steam to the apartments to be heated, I insert in the boiler, at the center of the upper end thereof, from whence it projects vertically upward through the top of the smoke-box C', and above said smoke-box I apply to the pipe *b* a nut, *n*, which serves to make an air-tight joint around the pipe, and also to hold the smoke-box in its position.

*g* is a glass tube arranged vertically on the outside of the case D, and connected at one end to a horizontal extension of the steam-pipe *b*, and at the lower end to a pipe, *h*, which taps the boiler near its bottom. Said tube *g* serves as a water-gage for the boiler.

What I claim is—

1. The fire-pot A, combustion-chamber C, and smoke-box C', superstructed successively one upon the other, the radiator R, arranged



around the exterior of the combustion-chamber and communicating with the smoke-box C', the boiler B, arranged inside of the combustion-chamber, with the fire-passage *a* between them, and provided with flues *ff* and the steam-pipe *b*, all combined and arranged as described and shown, in combination with the inclosing-case D, provided with hot-air ducts P, substantially as specified.

10 2. The combination of the combustion-chamber C, having the smoke-box C', seated upon the ledge *c*, on the interior of the combustion-chamber, the boiler B, suspended from said ledge *c*, and having the fire-passage *a* around its sides,

and the steam-pipe *b*, extended vertically from the center of the upper end of the boiler through the top of the smoke-box C', and provided above the latter with the nut *n*, all substantially as described and shown. 15

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 12th day of September, 1881. 20

JOHN F. PEASE. [L. S.]

Witnesses:

WM. C. RAYMOND,  
C. H. DUELL.