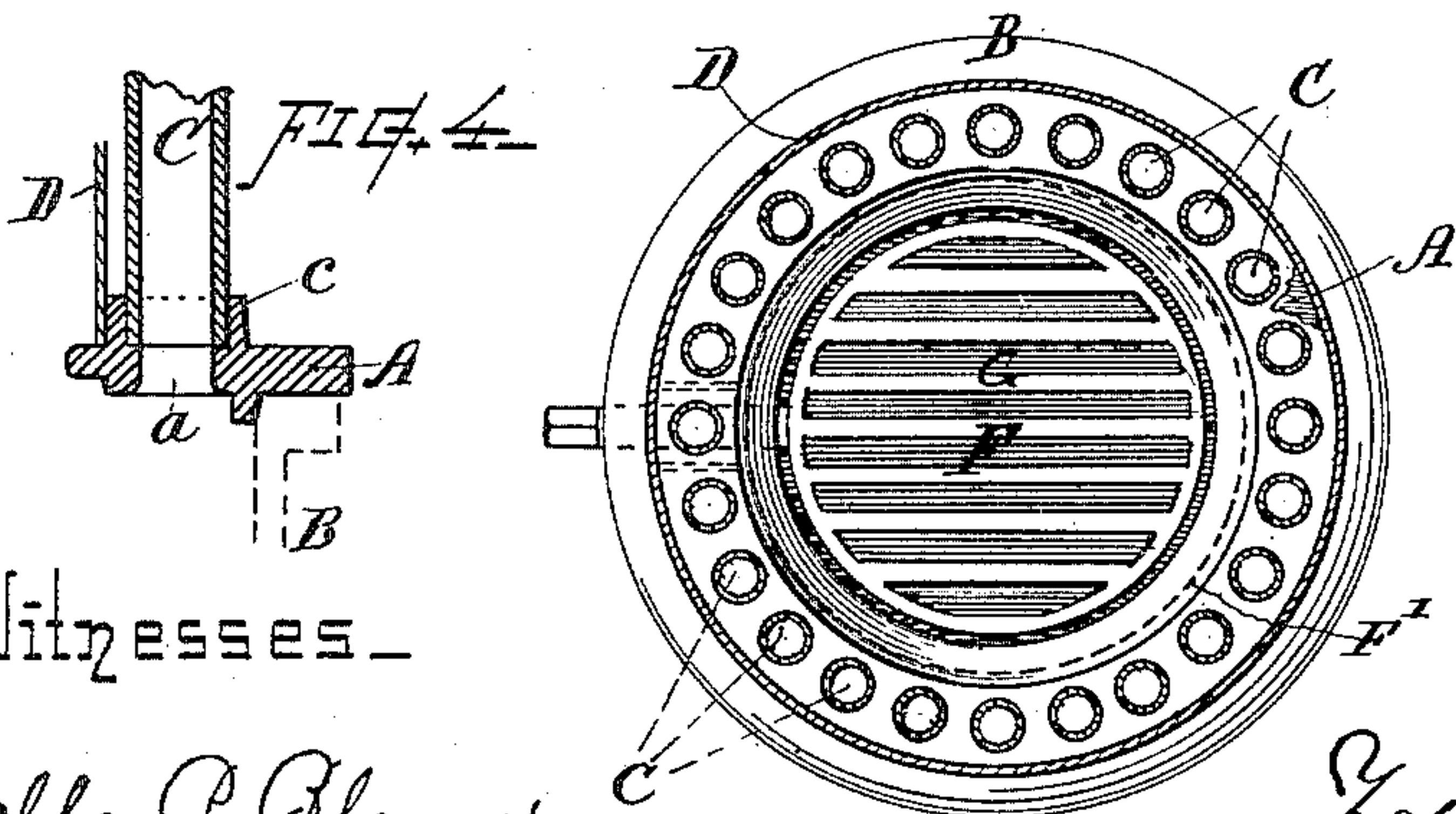
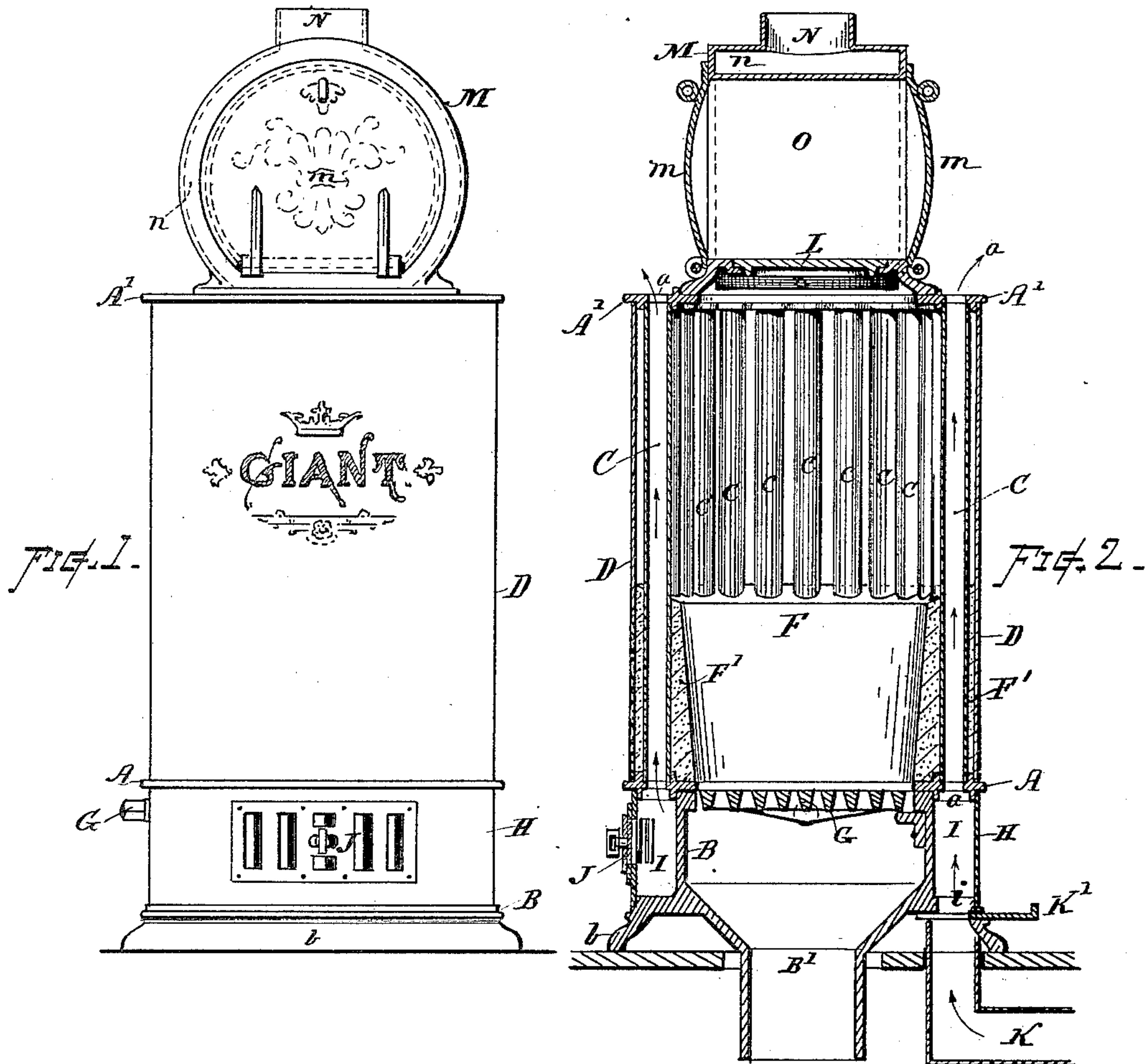


(No Model.)

Z. BAKER.
HEATER OR STOVE.

No. 442,348.

Patented Dec. 9, 1890.



Witnesses—

Ella P. Glenus
Simon C. Sina

—FIG. 3—

Inventor—

Zephaniah Baker
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UNITED STATES PATENT OFFICE.

ZEPHANIAH BAKER, OF DUDLEY, MASSACHUSETTS.

HEATER OR STOVE.

SPECIFICATION forming part of Letters Patent No. 442,348, dated December 9, 1890.

Application filed April 14, 1890. Serial No. 347,814. (No model.)

To all whom it may concern:

Be it known that I, ZEPHANIAH BAKER, a citizen of the United States, residing at Dudley, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Heaters or Stoves, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of my present invention is to provide an efficient and convenient heater or stove of simple and improved construction for use in the warming and ventilating of buildings, apartments, &c.; and my invention consists in the improved structure of the stove, wherein the body is made up of a complete circle of closely-set tubes and a cylindrical outer sheet, combined with annular perforated plates, such as hereinafter explained, and the organization and disposition of parts in the peculiar manner shown and described, the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a front view of my improved heater. Fig. 2 is a vertical section of the same at line *w w*. Fig. 3 is a horizontal section at line *x x*, and Fig. 4 is a section showing the manner in which the pipes are connected with the annular plates.

My improved heater consists of a cylindrical body or receptacle containing the fire-chamber, the walls of which are composed, essentially, of a series of closely-set upright pipes, disposed in a complete circle about the fire-space and surrounded by a sheet-metal casing or shell, all of said pipes and the casing being of equal length and supported at both their top and bottom ends by similar annular perforated plates, through which the pipes open to the exterior of the heater, so that air has free passage up through the pipes. This receptacle is supported upon a base provided with a grate and ashway, and is preferably surmounted by a chambered drum containing an oven having doors arranged at the ends thereof, as illustrated, the several parts being constructed, disposed, and organized, as will now be more fully explained.

Referring to the drawings, A and A' indi-

cate two horizontal rings or flat annular plates of substantially similar size and shape. Said plates are cast with an annular series of perforations or openings *a* and fitted with suitable bosses, flanges, or sockets for receiving the adjacent parts.

B indicates the base casting, having a suitable foot *b* and a support for the fire-grate G, which latter may be of any desired pattern. The top of the base forms a seat for the lower annular plate A, and is made of less diameter than said plate, so that the row of openings *a* in said plate is at the exterior of the base B. This base is preferably provided with a funnel-shaped ashway B' for conveying the ashes from the grate G to a suitable receptacle beneath the floor of the apartment.

C denotes the upright pipes or tubes, preferably made from ordinary gas-pipe about one and one-half inch in diameter, (more or less, accordingly as the heater is large or small,) cut off square at their ends and fitted to the openings *a* in the plates A A', which are best provided with bosses, as at *c*. These pipes are arranged in a close-set series completely around the fire-chamber F, and are externally surrounded by a sheet-metal cylinder or shell D, connecting the upper and lower plates A A' at or near their peripheries and disposed closely adjacent to the pipes, as shown, the parts being secured together by suitable bolts or rivets in any convenient manner. In the lower part of the fire-chamber the pipes are covered with a body of fire-clay or refractory material F', preferably put on when in a plastic condition, covering the pipes and shell, thus forming a fire-pot for the coal or other fuel.

The base B is best provided with an outer casing H of sheet metal to form an air-chamber I, with which the lower ends of all the pipes C communicate, and which is provided with a passage *i* for the admittance of air into said chamber from a flue K, that leads from the exterior of the building. A slide-gate K' is provided for stopping the inlet-passage *i*, and an air-gate J is arranged in the casing H for admitting air into the chamber I and pipes C directly from the apartment. In some instances the casing H can, if desired, be

omitted, the lower ends of the pipes C being open immediately to the exterior of the heater-base. The top ends of the pipes C open directly to the exterior through the plate A'.

5 The air passes up through the pipes, as indicated by the arrows, and becomes heated, to be delivered into the room from the top end of the pipes.

M indicates a double drum, preferably of
10 cylindrical form, and arranged upon the top of the fire-receptacle in the manner shown. An oven O is formed within the drum, and the ends thereof are provided with doors *m*, that open to the interior space or oven. The
15 annular space *n* between the shells affords facility for the products of combustion to pass up around the oven and to the chimney or smoke-pipe that is attached to the flanged opening N on the exterior of the drum. The
20 top plate of the fire-chamber F connects with the inner shell of the drum and forms the level bottom for the oven O, and is provided with an opening fitted with a removable lid L, through which fuel can be introduced to
25 the fire-chamber F by opening one of the doors *m* and the lid L.

By the construction shown and described a very simple, economical, and serviceable heater is provided. The oven may, in some
30 instances, be omitted, the fire-chamber being fitted with the plain top and lid L.

It will be understood that I do not claim, broadly, the feature of an air-pipe open at its bottom and top in connection with a stove or
35 heater, as such feature has been employed in various different styles of heaters; neither do I claim, broadly, an ash-dump passage beneath a stove, nor an oven-drum at its top irrespective of the particular arrangement
40 and disposition of parts shown.

I claim as my invention herein to be secured by Letters Patent—

1. The heater-body composed of two annular plates, each formed, as shown, with an
45 annular row of perforations, with bosses for retaining the ends of tubes, the sheet-metal outer cylinder connecting the peripheries of

said plates, and the row of upright pipes set in close series in a complete circle around the fire-chamber adjacent to the inner side of
50 said cylinder, all extending from one plate to the other, with both their ends opening to the exterior through said perforated plates, in combination with a supporting-base and grate, said body being mounted upon said
55 base with the annular row of perforations overhanging in the manner shown, and a top provided with an opening and removable lid for the introduction of fuel within the circle of the top plate, all substantially as set forth. 60

2. The combination of the two similar flat plates A A', each provided with an annular series of openings *a*, with pipe-supporting bosses *c*, the series of upright pipes C, standing in a closely-set series between said plates,
65 their top and bottom ends supported by said bosses and matching the opening through the plates, the sheet-metal cylinder D, connecting said plates and surrounding the pipes adjacent thereto, the refractory lining F' within
70 said shell, formed of plastic material and embracing the lower portions of said pipes, the supporting-base B, having a seat for the plate A of less diameter than the circle of pipes C, and the grate G, supported in said base, all
75 constructed and arranged substantially as shown and described.

3. The within-described heater, composed of the upper and lower similar annular perforated plates A' and A, a complete circle of
80 vertical pipes C in close-set series with the sheet-metal casings surrounding and inclosing said pipes, as shown, the supporting-base, the grate G, and the top provided with the double-drum oven O, with doors *m*, the re-
85 movable lid L in the oven-bottom, and smoke-outlet passage M from between the drums, all substantially as set forth.

Witness my hand this 11th day of April, A. D. 1890.

ZEPHANIAH BAKER.

Witnesses:

H. J. CLARK,
ANDREW DRAGON.