No. 751,794. PATENTED FEB. 9, 1904.

P. J. W. HOAGLUND.

HEATER.

APPLICATION FILED DEC. 3, 1903.

NO MODEL.

Fig. 1.

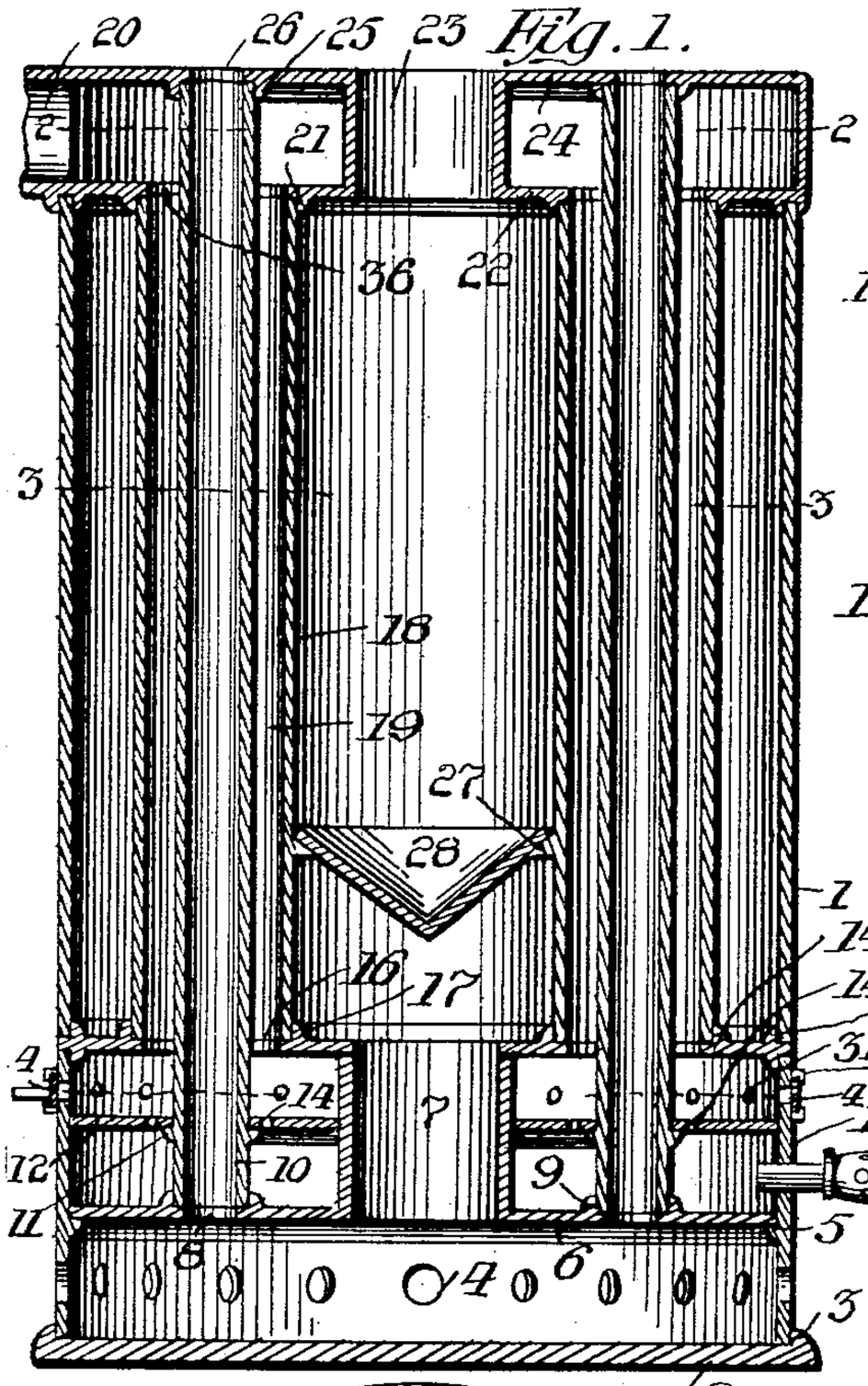

Fig. 3.

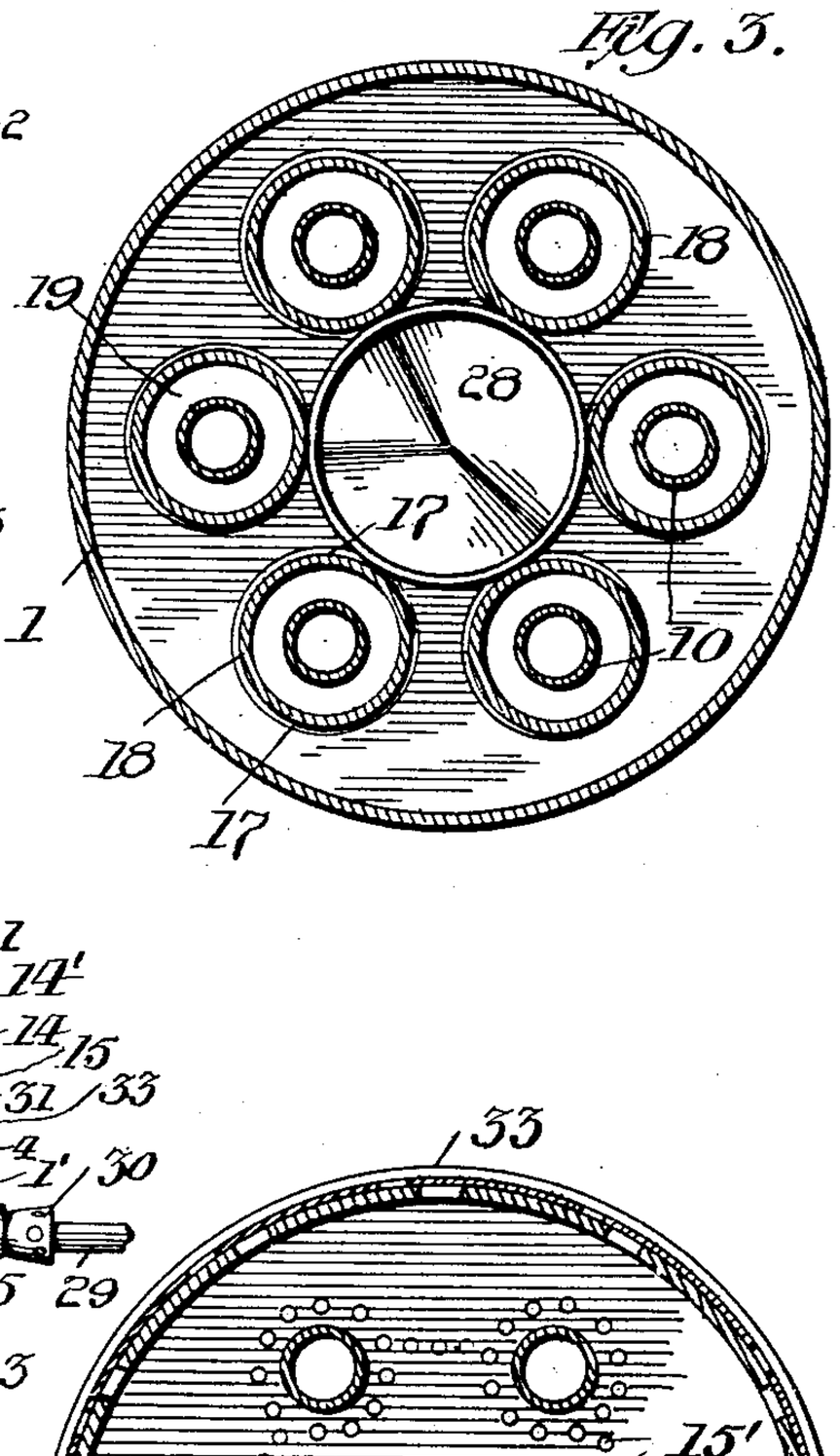

Fig. 2.

Fig. 4.

Witnesses:
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No. 751,794. Patented February 9, 1904.

UNITED STATES PATENT OFFICE.

PETER J. W. HOAGLUND, OF STERRITT TOWNSHIP, ALLEGHENY COUNTY, PENNSYLVANIA.

HEATER.

SPECIFICATION forming part of Letters Patent No. 751,794, dated February 9, 1904.

Application filed December 3, 1903. Serial No. 183,628. (No model.)

To all whom it may concern:

Be it known that I, PETER J. W. HOAGLUND, a citizen of the United States of America, residing in Sterritt township, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Heaters, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in heaters, and more especially to that class of heaters in which the air is heated and discharged into the room or conveyed to other apartments.

The invention has for its object the provision of a heater particularly adapted for use in connection with the burning of natural gas as a fuel and aims to provide for the rapid and economic heating of the air.

A further object of the invention is to provide a heater in which all of the fumes and non-combustible elements which arise from the flame are discharged into a flue, while the heated air is discharged into the room or, if desired, into separate flues and conveyed to different apartments.

A practical form in which I have contemplated embodying my invention is illustrated in the accompanying drawings and will be hereinafter described in detail and then particularly claimed.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this application, and wherein like numerals of reference indicate like parts throughout the several views, in which—

Figure 1 is a vertical sectional elevation of a heater constructed in accordance with my invention. Fig. 2 is a horizontal sectional view taken on line 2 2 of Fig. 1. Fig. 3 is a like view taken on line 3 3 of Fig. 1. Fig. 4 is a like view taken on the line 4 4 of Fig. 1.

The body of the heater comprises a casing consisting of two members 1 and 1′, which herein shown is cylindrical in form, though it may be made of other shape without departing from the spirit of the invention, this casing being mounted on a suitable base 2, which may be provided with an annular flange 3 to hold the casing 1′ in position on the base. The casing forming the body of the heater is provided adjacent its lower end with a plurality of cold-air inlets 4 and has on its inner wall above these cold-air inlets supporting-lugs 5, on which rest the plate member 6, which carries the central upwardly-extending pipe-section 7. The plate member is provided with a plurality of openings 8, arranged circumferentially around the pipe-section 7, and on its upper face the plate member 6 has annular flanges 9, surrounding the openings 8. These annular flanges 9 receive the lower ends of vertically-disposed pipes or flues 10, that at their lower ends rest on the plate member 6 and which receive the cold air drawn in through inlets 4, whereby to permit the same to be heated before it is discharged from the upper ends of pipes or flues 10. The pipes or flues 10 are provided with lugs 11 near their lower ends, or an annular flange would serve the same purpose, and which acts as a support for the burner-plate 12, provided with circumferentially-arranged burner-openings 14 around each of the pipes or flues 10. Fitting on top of the upper edge of member 1′ of the casing and on the upper end of the pipe-section 7 is a partition-plate 14′, which receives the lower edge of the upper member 1 of the casing and is provided adjacent its rim with an annular flange 15 on both its upper and lower faces to engage with the inner walls of the member 1 and member 1′. This partition-plate, besides being provided with a central opening to register with pipe-section 7, has circumferentially-arranged openings 16, through which the pipes or flues 10 extend, and on its upper face this plate 14 is provided with annular flanges 17 around each of the openings 16. These annular flanges receive the lower ends of concentric pipes 18, surrounding each of the pipes or flues 10, the annular space 19 between the inner walls of pipes 18 and exterior walls of pipes 10 forming a flue entirely surrounding the pipes 10 and through which the products of combustion and fumes are conducted to the flue 20. The pipes 18 are received at their upper ends within the annular flanges 21, carried by the bottom plate 22 of the top casing, this top cas-

ing being provided with a concentrically-arranged pipe-section 23, and the upper plate 24 of this casing has an annular flange 25, that receives the upper ends of the pipes 10, the said top plate 24 having openings 26, which register with said pipes. The concentrically-arranged pipes 18 carry near their lower ends supporting-lugs 27, on which is supported the substantially inverted cone-shaped deflector 28. A supply-pipe 29 is led into the space between plate 12 and plate 6 and is provided with a mixer 30 of any desired or approved form. It is also desirable under certain conditions to admit air to the chamber between the plate 14 and plate 12, and to accomplish this end I provide the member 1 with openings 31, controlling the amount of air admitted through said openings by means of a damper 32, of annular form, which is movable in clips 33, carried on the exterior of the member 1′, and is provided with openings 34, adapted to be brought into or moved out of registry with openings 31. A suitable operating-handle 35 is provided for actuating this annular damper. The gas is adapted to be ignited as it escapes through the openings 14, and the cold air drawn in through inlets 4 and passing up through pipes 10 will be heated during its passage and discharge at the upper end of the heater. The cold air which passes up through pipe-section 7 is deflected by member 28, so as to force the same outwardly against the pipes 18. The products of combustion and fumes arising from the flame pass up through annular flues 19 and through opening 17 into the bottom plate 22 of the top casing in the space between plates 22 and 24 and to the flue 20.

In order that the gas escaping from each of the circular-arranged burner-openings 14 may be ignited from the lighting of the gas at one point, I provide the burner-plate with openings 15′ between each series of burner-openings 14.

Although the deflector 28 is shown as supported by pipes 18, it will be observed that the same may be supported from the partition-plate 14′. The purpose of this deflector is to cause the cold air that passes up through pipe-section 7 to be diffused or spread outwardly around pipes 18 in order that it may be more effectually heated. The burner-openings being around each pipe 10 the flame will impinge the said pipes and with the pipes 18 at the lower portions of the latter.

In the practice of the invention it will be noted that various changes may be made in the details of construction without departing from the general spirit of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a heater of the type described, an outer casing comprising an upper and lower member mounted one on top of the other, said lower member provided with upper and lower rows of cold-air inlets, a plate member supported by the lower member of the casing and provided with an upwardly-extending pipe-section, said member having circumferentially-arranged openings, pipes supported on said plate member, registering with said openings, a burner-plate supported on said pipes, a partition-plate separating the upper and lower members of the casing and provided with circumferentially-arranged openings, pipes supported on said partition-plate and inclosing the first-mentioned pipes, and a top casing comprising an upper and lower plate having openings registering with the respective pipes, substantially as described.

2. A heater comprising an annular casing provided in its lower end with an upper and lower series of cold-air inlets, a damper controlling the upper series of said inlets, a plate member supported on the end of said casing and provided with circumferentially-arranged openings, a series of circumferentially-arranged pipes supported on said plate member and registering with the openings therein, a burner-plate supported by said pipes within the casing above the plate member, a series of pipes supported by said partition-plate and through which the first-mentioned pipes extend, and a top casing having an upper and lower plate provided with openings registering with the respective pipes, substantially as described.

3. In a heater, a casing provided near its lower end with cold-air inlets and concentrically-arranged pipes adapted to receive the air, a second series of pipes surrounding the first-mentioned pipes, an air-deflector supported by the second-mentioned pipes, and a top casing comprising an upper and lower plate having openings registering with the respective pipes, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

PETER J. W. HOAGLUND.

Witnesses:
A. M. WILSON,
E. E. POTTER.