

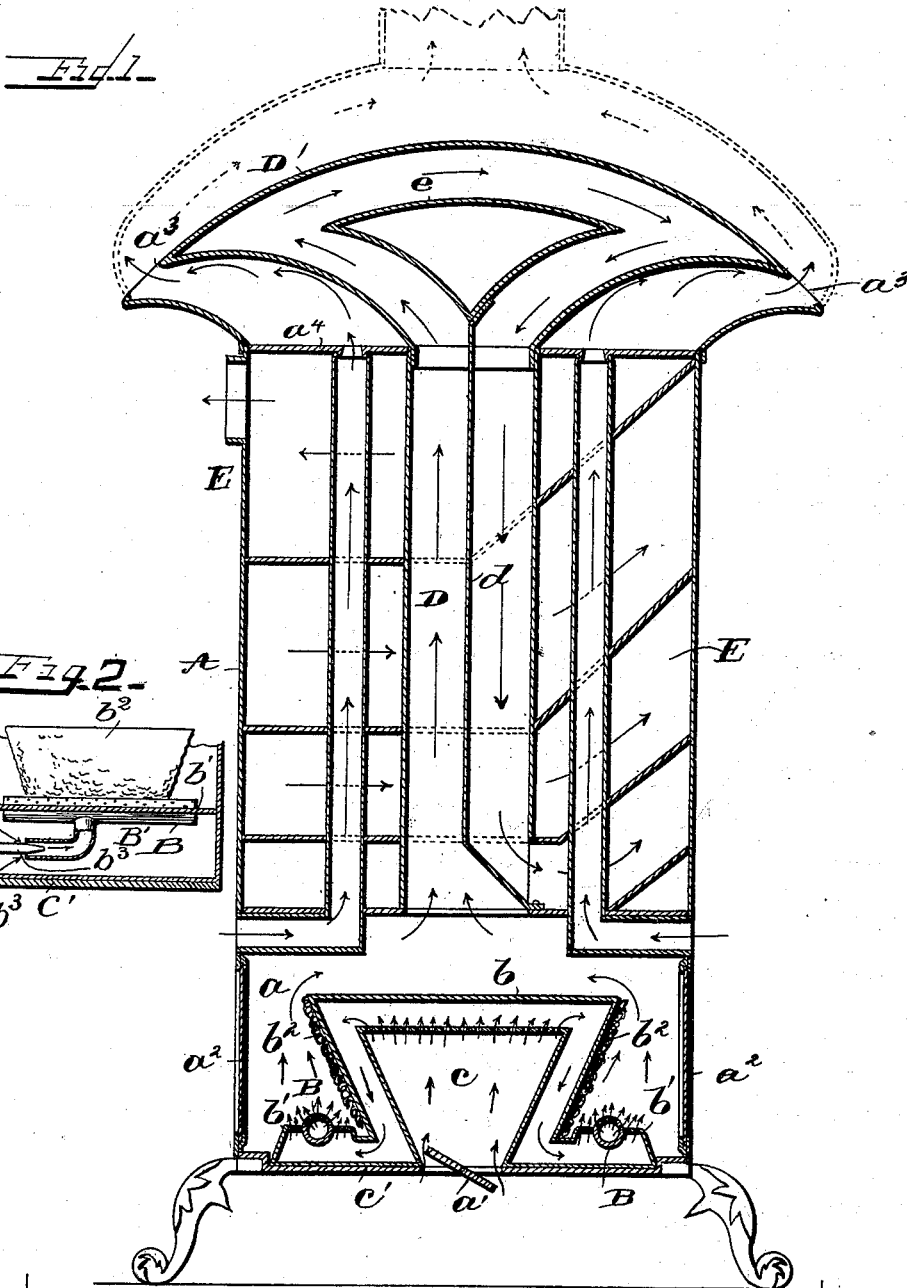
No. 648,441.

A. L. SCHELLHAMMER.
GAS HEATING STOVE.

Patented May 1, 1900.

(Application filed Aug. 28, 1898.)

(No Model.)



WITNESSES—

J. A. Pauberschnitt.
L. C. Hills

INVENTOR—

Alfred L. Schellhammer
By his Attys.
Whitaker & Prevost.

UNITED STATES PATENT OFFICE.

ALFRED L. SCHELLHAMMER, OF WARREN, PENNSYLVANIA.

GAS HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 648,441, dated May 1, 1900.

Application filed August 28, 1898. Serial No. 689,587. (No model.)

To all whom it may concern:

Be it known that I, ALFRED L. SCHELLHAMMER, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented certain new and useful Improvements in Gas Heating-Stoves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to gas-burning stoves, and more especially to that class of them in which air is heated and discharged into the room or conveyed to other apartments.

In my former patent for heaters, No. 496,750, granted May 2, 1893, I have shown a construction of air-passages and exit-passages for the products of combustion whereby the latter are made to give up a great portion of their heat to the air passing through the heater.

In the present instance my invention consists in applying the general principles of construction of my heater to a stove and in certain new constructions and combinations of parts whereby a very effective air-heating stove is produced.

The best form in which I have contemplated embodying my said invention is illustrated in the accompanying drawings and is disclosed in the following description and claims.

In the said drawings, Figure 1 is a vertical sectional elevation; and Fig. 2 is a sectional view, on a reduced scale, of the base-flanges of the air-heating drum of my improved burner.

The body of the stove is made of the casing A, which is preferably provided with a supporting structure holding the casing a short distance above the floor or ground. In the lower part of the casing is a chamber *a*, in which is located the gas burner or burners. Within the chamber *a* is the drum *b*, closed at the top and having its sides inclining inwardly, as shown. The lower edges of the walls are provided with an outwardly-extending portion or flange *b'*, the outer edge of which is given a turn downward. Within the drum *b* is a smaller drum *c*, conforming to the general shape of the walls of the drum *b*. The top of drum *c* is perforated, and the lower

edges of its walls rest upon or are connected with a plate *c'*, extending outwardly to the downwardly-extending edges of the flange *b'*. While this is shown as my preferred form, it will be understood that the plate *c'* may be omitted and the drum secured to the bottom of the casing A. The bottom of the casing A is provided with an opening, admitting air to the interior of the drum *c*, and the space between the two drums forms a passage for the air to support combustion. The burner B is located in the flanges *b'* of the drum *b*, and said flanges are perforated adjacent to the burner with fine perforations. The flames from the burner will heat the adjacent walls of the drum *b*, and the air in its downward course after passing through the perforations in the top of the drum *c* are brought into contact with these walls of the drum *b* and is heated thereby.

The opening in the bottom of the casing A is preferably provided with an oscillating or slide valve *a'*, by which the supply of air to the burner can be regulated.

The walls of the drum *b*, adjacent to the burner, are preferably coated with asbestos, as shown at *b²*, to protect the metal walls from injury from the flame of the burner, and the walls of the casing A may be provided with glazed openings *a²* opposite the asbestos when desired.

As will be seen from an examination of Fig. 2, the air heated in the drum *b* is also mixed with the gas before it reaches the burner. This mixing of air with the gas is effected in substantially the same manner as in many other burners. A gas-supply pipe *b³* extends within the open end of a pipe B', communicating with the body of the burner B and forming a mixing-chamber. The gas in the supply-pipe being under more or less pressure in passing out of the pipe *b³* acts as an injector, drawing air into the open end of the mixing-chamber B' in a well-known way. The open end of the pipe B or mixing-chamber being within the base of the drum *b*, the heated air is drawn into the pipe and mixed with the gas.

The burner and its air-heating drum may be circular, or the drum may be of rectangular form, with a burner upon two or more of its sides. This construction supplies heated

air to the burners, thereby increasing the effectiveness of the same. By reason of the fine perforations through which the air is forced to pass before reaching the flame of the burner the burning of the gas is not affected by the opening and shutting of doors or the like fluctuations of the atmosphere of the room in which the stove is located.

The radiator or air-heater above the burner is in its lower part made like the corresponding part of the construction shown in my prior patent, hereinbefore referred to.

Above the chamber *a* there is a vertically-disposed cylindrical or elongated chamber *D* of other form than circular, having a partition *d* within it dividing the chamber into two passages, one of which communicates with the chamber *a* and which forms the outlet for the products of combustion. These products return through the other passage and then pass outward into the lower part of an annular chamber *E*, surrounding the chamber *D*, which is provided with a single passage circling around the same and gradually nearing the top of the radiator, at which point the products of combustion leave the radiator and pass to the chimney or other uptake. This annular chamber has air-tubes *f* passing vertically through it, and in so far as already stated the radiation is much the same as that shown in my said former patent, except that I have in this instance shown the air-tubes as having the inlet ends of the same extending outwardly and connecting with apertures in the body of the casing *A*. If preferred, they might extend down to the bottom of the casing.

Above the main body of the casing *A* the chamber *D* is greatly expanded into a hollow cap or dome *D'*. The laterally-extending portions of this cap or dome may reach to or beyond the walls of the casing *A*, and within this cap or dome is a deflector *e*, which rests upon and is connected with the partition *d* in the chamber *D*. This partition *d* extends on each side of the cap or dome to the top of the same, so that the heated products of combustion are forced outward to the extreme outer parts of the cap or dome before returning downwardly through the second passage of the chamber *D*.

The outer walls of the casing *A* are extended upwardly and form the annular discharge-opening *a*³ for the heated air. This outlet for the heated air instead of being wholly open entirely around the stove will preferably be spanned by a grating of some sort whose interstices will afford an ample outlet for the air.

In case it is desired to conduct the heated air to another apartment an inclosing hood connecting with a conduit will be added, as shown in dotted lines.

It will be seen that as the air rises through the tubes or pipes *f* it will come into contact with the under surface of the cap or dome *D'* and will be additionally heated thereby. As

the products of combustion pass directly into said cap or dome from the chamber *a*, said cap will be heated to a higher degree of heat than the air-pipes *f*, which they encounter later.

What I claim, and desire to secure by Letters Patent, is—

1. In an air-heater, the combination with the main casing, of the annular radiator having air-passages extending vertically there-through, a rising and a diving flue within said radiator, a hollow cap or dome connected with said rising and diving flues and extending outwardly over the said air-passages, substantially as described.

2. In an air-heater, the combination with the main casing, of the annular radiator having air-passages extending vertically there-through, a rising and diving flue within said radiator, a hollow cap or dome connected with said rising and diving flues extending outwardly over said air-passages, and a deflector within said cap or dome, substantially as described.

3. In an air-heater, the combination with the main casing, of the annular radiator having an annularly-extending passage for conducting the products of combustion through a tortuous course from the bottom to the top of the radiator, a rising and a diving flue within said radiator, the diving flue connecting with the passage through the radiator, air-passages extending vertically through the radiator, and a hollow cap or dome connected with said rising and diving flues, said cap or dome extending laterally over the said air-passages, substantially as described.

4. The combination with a gas-burner, of an air-heating drum for supplying heated air to said burner, said air heating and supplying means including numerous small openings for admitting air to the drum, said openings being located in close proximity to a large portion of the heating-surface of the drum, and means for delivering the heated air to the burner, substantially as described.

5. The combination with a gas-burner, of an air-heating drum having an extended horizontal initial heating-surface, means for supplying air to the drum including numerous small openings for delivering air upward evenly over the said heating-surface, and means for delivering the heated air to the burner, substantially as described.

6. The combination with a gas-burner for heating purposes, of an air-heating device operatively connected therewith and supplying heated air to the mixing-chamber of the burner and also supplying it in a finely-divided state to the flame of the burner, substantially as described.

7. The combination with a gas-burner, of an air-heating drum for heating air, means for supplying air to said drum, including numerous small openings for delivering air evenly over a large portion of the heating-surface of the drum, and means for conduct-

ing the heated air to the mixing-chamber of the burner and to the flame of the burner, substantially as described.

8. The combination with a gas-burner, of
5 an air-heating drum, having an extended horizontal initial heating-surface, a more highly heated surface between said extended surface and the burner, means including numerous small openings for delivering air evenly to
10 the initial heating-surface, means for conducting the heated air to the burner, the open

end of the mixing-chamber of the burner being located in the heated-air conduit between the heating-surfaces of the drum and the burner, substantially as described.

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

A. L. SCHELLHAMMER.

Witnesses:

W. H. ALLEN,
G. H. WHITAKER.