No. 864,041. PATENTED AUG. 20, 1907.

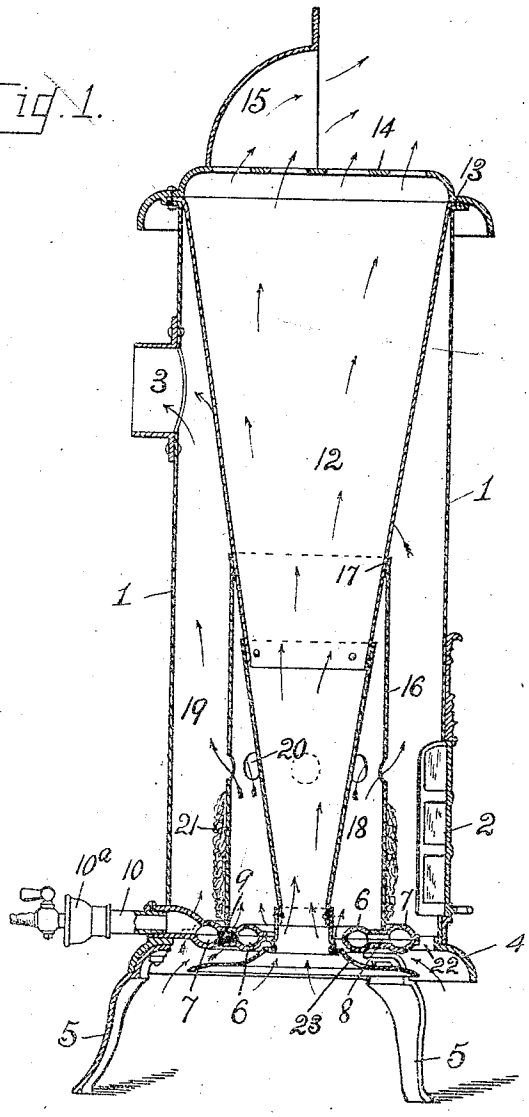
B. J. TAYLOR.

HEATING STOVE.

APPLICATION FILED AUG. 6, 1906.

2 SHEETS—SHEET 1

Fig. 1.



WITNESSES:

D. C. Walter

Hazel B. Hiett

INVENTOR.

Benjamin J. Taylor,

By Owen & Owen

His attorneys.

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2 SHEETS—SHEET 2.

Fig. 2.

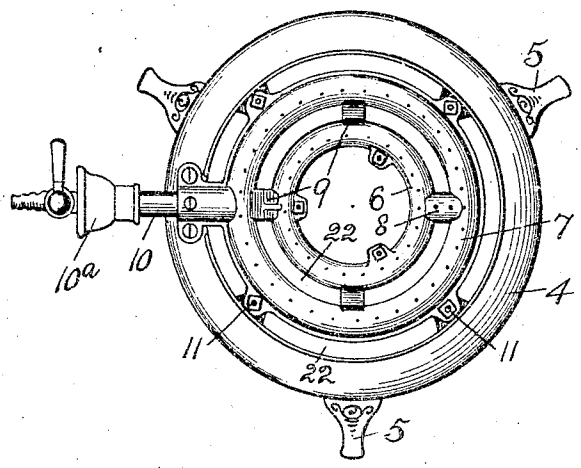


Fig. 3.

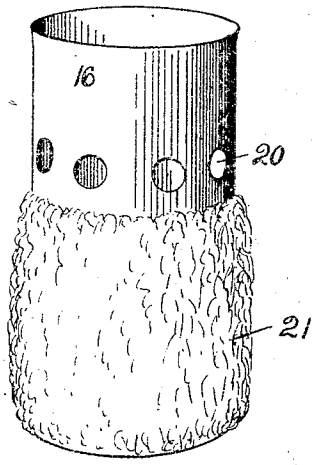
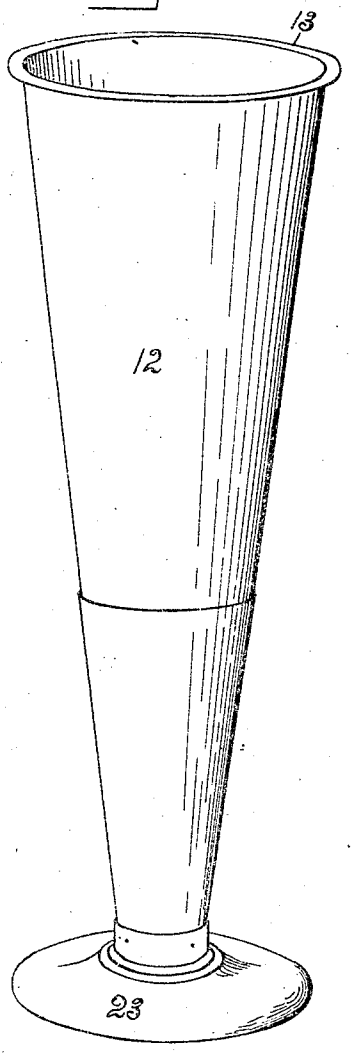


Fig. 4.



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UNITED STATES PATENT OFFICE.

BENJAMIN J. TAYLOR, OF TOLEDO, OHIO.

HEATING-STOVE.

No. 864,041. Specification of Letters Patent. Patented Aug. 20, 1907.

Application filed August 6, 1906. Serial No. 329,324.

To all whom it may concern:

Be it known that I, BENJAMIN J. TAYLOR, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to heating apparatus of the class more particularly designed for the use of gas as a fuel and in which cold air is received in volume at the bottom thereof and passes through the heating medium preparatory to being expelled in a highly heated state from the upper end of the apparatus.

The object of my invention is the provision of a simple and cheap stove of this class, which, due to its peculiar construction and heat radiating facilites, is capable of producing a greater heat radiation with a given amount of fuel than has heretofore been possible in the art, thus greatly enhancing its commercial value.

The operation, construction and arrangement of the parts of a preferred embodiment of my invention are fully described in the following specification and shown in the accompanying drawings, in which,—

Figure 1 is a central vertical section of the heating apparatus constituting my invention. Fig. 2 is a plan view of the base and associated burner thereof with the casing and inner shells removed. Fig. 3 is a perspective view of the outer shell of the inner combustion-chamber, and Fig. 4 is a similar view of the conical central air-flue.

Referring to the drawings, 1 designates a stove casing, which has the customary door 2 and smoke exit 3 provided therein. This casing is supported by a base-ring 4, to which it is suitably secured, said ring being in turn supported at a proper height above the floor by legs 5. Secured within the base-ring 4 is a double-ringed gas-burner, the rings 6 7 of which are of different diameters and secured together in radially spaced relation, one within the other, by means of the communicating tube or connection 8 and the spaced connecting members 9. This burner is provided with the usual inlet tube 10 and mixer 10^a which connect with the outer ring 7, and is supported by the base-ring so that its outer ring is slightly spaced therefrom due to the forming of radial ears on said outer ring and securing them to inwardly projecting ears on the base-ring by bolts 11, or in any other suitable manner.

Extending entirely through the casing 1 from bottom to top thereof with its contracted end disposed within the inner or small ring 6 of the burner is a conical air-flue 12, the upper end of which expands to substantially the diameter of the casing 1 and is formed with an annular flange 13 for seating on the upper flanged end of the casing, to which it is suitably secured. This flue is shown as being surmounted by the open-work top 14, which is suitably secured to the top of the stove and is provided on its upper side with the deflecting member 15 for directing the heated air to the front as it is emitted from the stove. This latter feature, however, forms no part of my invention and I therefore do not wish to restrict myself to its use.

Surrounding the lower portion of the air-flue 12 is a shell 16 of cylindrical construction, which has its lower end disposed between the rings 6 and 7 of the burner and supported by the connections 8 and 9 thereof, and its upper end meeting and forming a close joint with the conical casing of the air-flue as at 17. This shell divides the stove into an inner combustion-chamber 18, which is fed by the inner ring 6 of the burner, and an outer combustion-chamber 19, which is fed by the outer ring 7 of the burner, as shown in Fig. 1. In order to provide an exit for the products of combustion from the inner chamber 18, I provide the shell 16 intermediate its ends with a plurality of openings 20, which open communication between the inner and outer combustion-chambers and permit the heated gases from the inner chamber to be expelled to and commingle with those in the outer chamber and finally find an exit from the stove through the exit-flue 3. The shell 16 has its outer surface covered for a desired height with asbestos fiber 21 for the flames arising from the outer ring 7 of the burner to play on, thus making the stove, when lighted, appear through the door 2 like an open-front grate and giving to the eye a pleasing and cheerful effect. For the purpose of aiding the combustion of the gases from each burner ring, air is admitted to each chamber 18 19 from the bottom thereof through the spaces 22 provided between and around the burner rings due to the spacing of the rings from each other and from the base-ring 4.

A deflector flange or collar 23 is carried in any suitable manner by the lower end of the air-flue 12 immediately below the burner-rings so as to protect the floor from the heat which is radiated downwardly from the stove, but is so disposed relative to the burner as not to interfere with the free circulation of air therethrough, as shown in Fig. 1.

With this construction of stove the heat generated by the inner burner-ring 6 is more or less confined within the chamber 18 and caused to hug the wall of the air-flue 12, thus effecting an intense heating of such wall and a consequent high heating of the air passing therethrough, whereby the heating efficiency of the stove in this respect is materially increased, as it is apparent that the greater the heat of the wall of the flues the greater will be the volume and degree of air passing therethrough. As the heated gases are expelled from the chamber 18 through the openings 20 into the cham-

ber 19 they commingle with the heated gases and flames arising from the outer burner-ring 7 and contribute to the heat radiation of this chamber and also operate on the upper portion of the flue 12 to increase its temperature. The stove also acts as a base-heater, as a considerable portion of the heat is radiated from the stove through the bottom thereof.

I wish it understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

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

1. A heating-stove provided with a conical air-flue extending vertically therethrough, and having two combustion-chambers surrounding the flue and operating on different superimposed portions thereof, and a double-ringed burner having a ring thereof associated with each chamber.

2. A heating-stove provided with a conical air-flue extending therethrough, and having an inner combustion-chamber surrounding the lower contracted portion of the flue, and an outer combustion-chamber communicating with and surrounding the inner chamber and having its upper portion directly inclosing the upper portion of the flue, and a ring burner in the bottom of each chamber.

3. A heating-stove provided with a conical air-flue extending vertically therethrough, and having inner and outer communicating combustion-chambers surrounding the air-flue and extending substantially to the bottom thereof, a double-ringed burner having a ring disposed beneath each chamber, and a deflector-collar carried by the flue beneath the burner, the stove having its bottom open except for the burner and deflector-collar.

4. In a heating-stove, a conical air-flue extending centrally therethrough, a shell surrounding the lower contracted portion of the flue to form an inner and an outer combustion-chamber and having openings communicating with the major or outer combustion-chamber, and a ring burner for each chamber.

5. In a heating-stove, a conical air-flue extending vertically therethrough, a shell surrounding the lower contracted portion of the flue whereby to divide the stove into an inner and an outer combustion-chamber, said shell being provided with escape openings and having a portion of its outer surface covered with asbestos fiber, and a double-ringed burner in the lower portion of the stove having a ring disposed beneath each chamber.

6. A heating-stove provided with a conical air-flue extending therethrough and having an open bottom, a cylindrical shell surrounding the lower contracted portion of the flue and closed at its top by said flue whereby to divide the stove into an inner and an outer combustion chamber, said shell being provided with gas escape openings, a double-ringed burner in the lower portion of the stove with a ring thereof disposed beneath each chamber, said burner having air openings around each ring, and heat-deflector means disposed beneath the burner.

7. A heating-stove provided with a vertical air-flue therethrough and having a combustion-chamber encircling the lower portion of the flue, and a combustion-chamber encircling the first mentioned chamber and having its upper portion directly inclosing the upper portion of the flue, and a burner associated with each chamber.

8. A heating-stove provided with a conical air-flue extending vertically therethrough and having a plurality of communicating combustion-chambers, one encircling another and all encircling the air-flue, and a burner for each chamber.

9. In a heating-stove a vertical air-flue extending through the stove and open to the atmosphere at its top and bottom, a combustion-chamber having its inner casing formed by the flue, a second combustion-chamber communicating with the first and having a portion of its inner casing formed by said first chamber and a portion formed by the flue, and a burner for each chamber.

10. A heating-stove having inclosed within its drum a shell of less diameter and shorter than the drum and communicating with the stove exit, said shell dividing the interior of the stove into an inner and an outer combustion-chamber, a conical air-flue extending vertically through the drum with its top and bottom open to the atmosphere and its lower contracted end inserted within said shell.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

BENJAMIN J. TAYLOR.

Witnesses:
C. W. OWEN,
HAZEL B. HIETT.