

No. 845,828.

PATENTED MAR. 5, 1907.

H. STRAND.
FURNACE.

APPLICATION FILED MAR. 16, 1906.

2 SHEETS--SHEET 1.

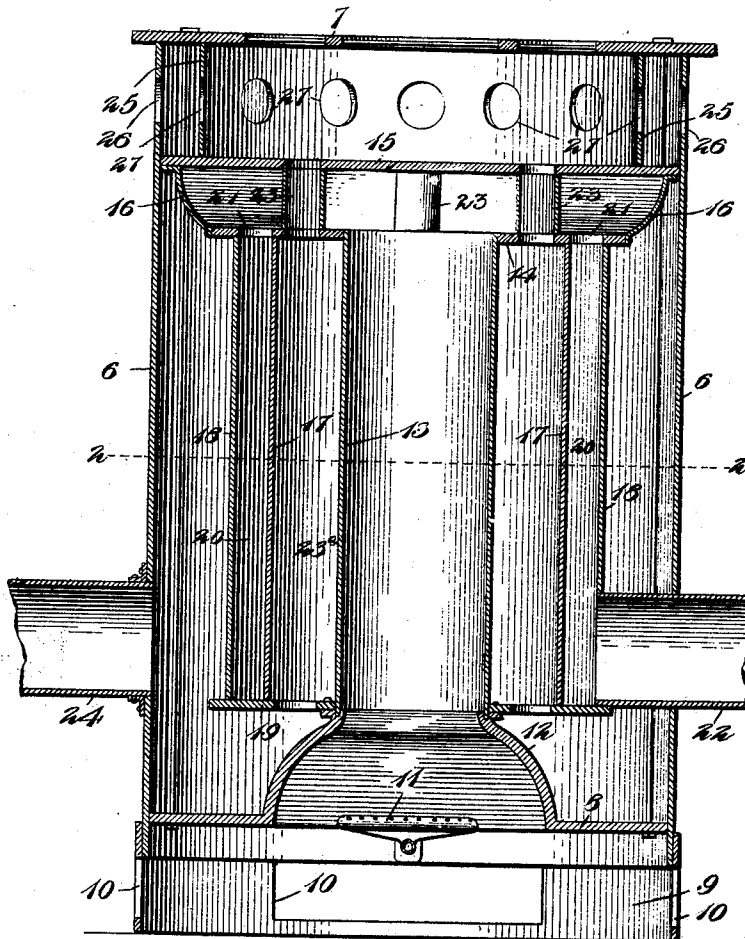


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

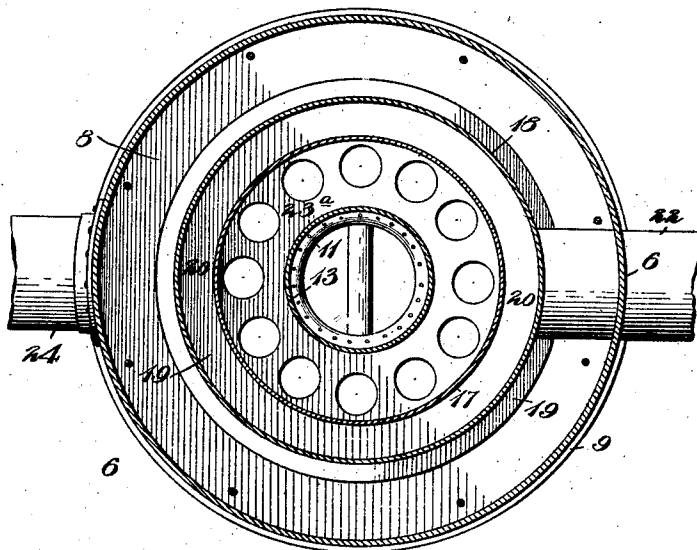
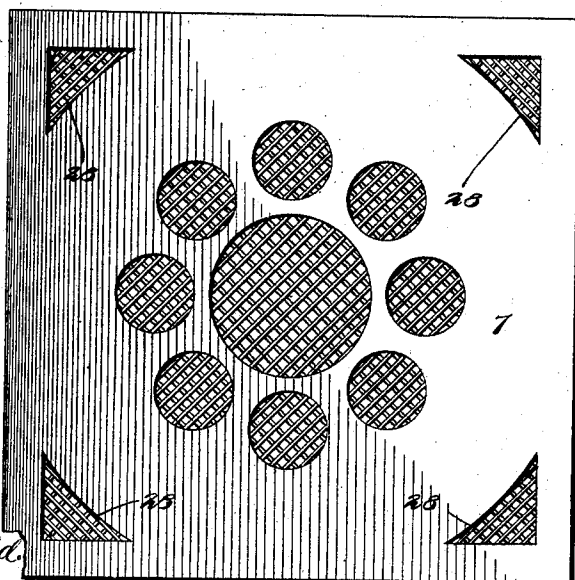


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY STRAND, OF CLEVELAND, OHIO.

FURNACE.

No. 845,828.

Specification of Letters Patent.

Patented March 5, 1907.

Application filed March 16, 1906. Serial No. 306,381.

To all whom it may concern:

Be it known that I, HENRY STRAND, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Furnaces, of which the following is a specification.

This invention is a gas-furnace adapted to be placed in or under a floor, and particularly intended for the use of natural gas.

Some furnaces have heretofore been constructed in which the products of combustion pass into the room being heated. This is objectionable for various reasons. In the device herein described and claimed the products of combustion do not pass through the room, but are carried off to a flue or smoke-stack, the room being supplied with air heated by the burning gas.

In the accompanying drawings, Figure 1 is a central vertical section of the furnace. Fig. 2 is a horizontal section on the line 2 2 of Fig. 1. Fig. 3 is a top plan view.

The furnace is one of that kind adapted to be set in a register opening or hole in a floor, depending below the floor into the cellar or basement, where the gas and cold air are supplied. The top of the furnace has the form of a register, through which the heat escapes into the room above.

Referring specifically to the drawings, 6 indicates an outer cylindrical jacket or casing closed at the top by the register-plate 7, through which suitable openings are provided for the escape of heated air, and at the bottom by a burner-plate 8, under which is a box 9, to which air is admitted through doors 10 in the side and supplied therefrom to the gas-burner 11, which is contained in an inverted-cup-shaped part 12 of the plate 8. This part supports a central vertical heating drum or pipe 13, which opens at the top through a plate 14, above which is another plate 15. These two plates are spaced apart and connected together by a ring 16, secured thereto. Surrounding and concentric with the drum 13 is a drum 17, and outside of this is another drum 18. These drums extend downwardly from the plate 14 to a lower plate 19, which rests upon the top of the cone 12. The annular space 20 between the drums 17 and 18 communicates at the top through openings 21 in the plate 14 with the space between said plate and the plate 15, and said annular space further communicates at its lower end with a

flue 22, leading to the stack. The products of combustion thus pass from the burner 11 up through the drum 13 and out into the space between the plates 14 and 15 and thence down through the annular space 20 and out through the flue 22.

Extending vertically between the plates 14 and 15 are pipes 23, forming a passage for heated air. These pipes open at their lower ends through holes in the plate 14 and at their upper ends through holes in the plate 15. Air is admitted within the jacket 6 by means of the cold-air-supply pipe 24, and it then passes over the plate 8 in close contact with the highly-heated portion 12 thereof, and then up through the annular space 23^a between the drums 13 and 17 and through the space 23 to the space above the plate 15, and then out through the openings in the register.

The space between the plate 15 and the register 7 is surrounded by a ring or drum 25 of less size than the jacket, the plate 15 being the same diameter as the jacket. The drum forms an annular air-space within the jacket, between the plates 7 and 15, and cold air enters this space through holes 26 in the jacket and escapes inwardly through holes 27 in the ring 25 into the main hot-air space under the register. The outer annular space to which air has access, assists in keeping the jacket cool to avoid danger of fire to the adjacent woodwork of the floor. A draft of air arising around the jacket 6 may also enter the room through the corner-openings 28 in the register-plate.

It will be seen that none of the products of combustion can enter the room. By means of the long and indirect passage through the furnace for such products the cold air supplied is thoroughly heated by contact with the plate 8, drums 13, 17, and 18, and plate 15.

I claim—

1. In an air-heater, in combination, a jacket, a top plate thereon having a register therein, an air-chamber under the top plate, having double spaced walls and air-inlet openings therethrough, a burner in the lower part of the jacket, passages extending from said burner within the jacket and to an escape-flue, and air-passages extending upwardly from the lower part of the jacket to the said air-chamber and adjacent to the aforesaid passages.

2. In an air-heater, in combination, an

outer jacket having a register-plate on the top thereof, a burner in the lower end of the jacket, a horizontal partition extending across the jacket under the register-plate
5 and forming an air-chamber, cold-air inlets to said chamber through the jacket, and means to supply heated air to the said chamber.

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

HENRY STRAND.

Witnesses:

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