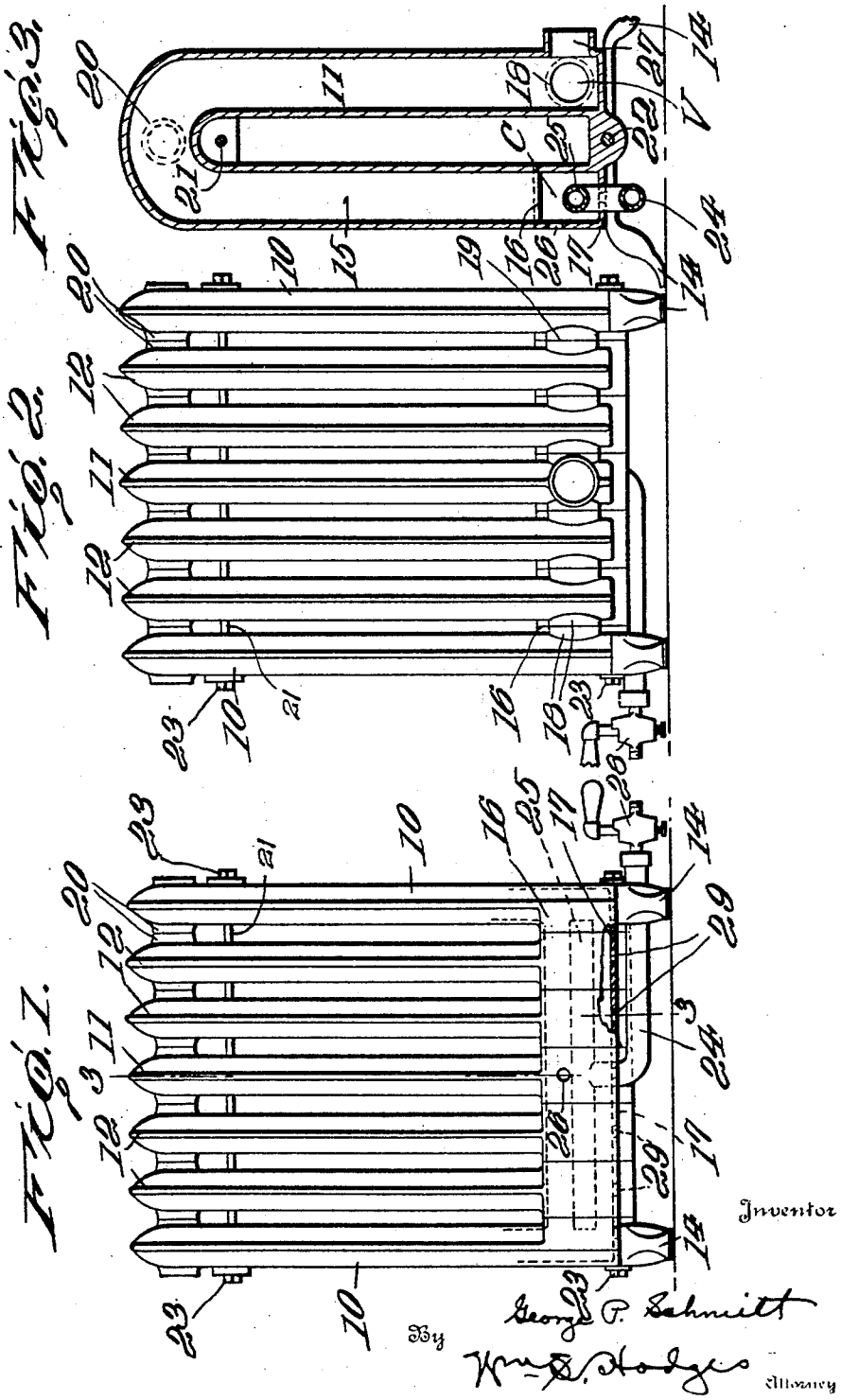
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G. P. SCHMITT

RADIATOR

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UNITED STATES PATENT OFFICE.

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RADIATOR.

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To all whom it may concern:

Be it known that I, GEORGE P. SCHMITT, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented a new and useful Radiator, of which the following is a specification.

This invention is a radiator of the type in which gaseous fuel is utilized as the source of heat.

One of the objects of the invention, is to provide a radiator, having means to insure complete circulation of air from the bottom to the top and back again, before passing out through the vent opening, thus distributing the heat evenly over every part of the radiator, and in this manner insuring a maximum heating efficiency with a minimum consumption of fuel, so that the device will be inexpensive and economical in operation. A further object is to provide means whereby any foul and impure air in the space to be heated, is drawn off at the floor line, and discharged through the vent, thus insuring positive ventilation, eliminating all odors, and preventing emission of fumes of any kind. A further object is to provide a radiator of the type mentioned, provided with a combustion chamber proportioned to insure proper mixture of air for the combustion of the gas, whereby the heat is applied at the lowest or coldest portion first, and condensation and sweating is entirely eliminated.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings:—

Figure 1 is a front elevation illustrating a radiator constructed in accordance with the invention. Figure 2 is a rear elevation thereof. Figure 3 is a transverse cross section on the line 3—3, Figure 1.

Referring to the drawing, 10, 10, designate the two end sections, 11 a middle section, and 12 filling in sections, united to provide a radiator body. The sections 10 are provided with legs 14, or other suitable means for supporting the structure.

Each section 10, 11 and 12 is constructed with an approximately inverted U-shaped flue portion 15, the lower extremity of the front leg thereof, being provided with an enlargement 16 of rectangular cross-section, provided with a bottom wall 17. The other leg of the flue section is provided with approximately circular enlargements 18, projecting from both sides of the said leg. The enlargements 16 and 18 are provided with complemental interengaging portions 19, so that when a set of radiator sections is assembled, the enlargements 16 provide a combustion chamber C, of approximately uniform rectangular cross-section throughout its length, extending the full length of the radiator, and the enlargements 18 provide a circular vent chamber V, of approximately uniform cross-section throughout its length extending the length of the radiator at the rear thereof. The radiator sections are also provided with complemental bosses 20 which engage with each other when the sections are assembled. The desired number of sections is held in assembled relation by any suitable means, such as the threaded rods 21 and 22, and nuts 23. The rods 21 pass through the spaces between the fronts and backs of the sections, the nuts bearing against lugs carried by the outer sections. Of course, the joints between the sections are packed in any preferred manner, such as by a suitable cement.

The bottom wall of the enlargement 16 of the radiator section 11, is provided with an opening through which the mixing pipe 24, of the gas burner 25 extends, said burner extending lengthwise of the combustion chamber C. The front wall of the enlargement 16 of said intermediate section, is provided with a lighting opening 26, and the rear of said section is provided with a vent opening 27 communicating with the vent chamber V, and so arranged that it may be connected with a suitable flue leading to a chimney or the like. The mixing pipe 24 of the burner, extends beneath the radiator to one end thereof, and is provided with the usual gas cock and air openings, indicated as a whole at 28. The bottoms of the rectangular enlargements of all of the sections 11 and 12, are provided with air inlet openings 29, and similar openings are formed in the supporting legs of the sections 10.

In practice, the upturned end of the mixing tube 24 is inserted through the opening in the enlargement 16, of the intermediate section 11, and the burner is then attached thereto. The desired number of sections are then assembled, with the portions 16 and 18 of each section nesting into complemental

portions of the contiguous sections, until a radiator of the desired length has been constructed. The assembled sections are then clamped together by means of the rods 21, 22, and the nuts 23, the joints being packed so that there can be no escape of gas or products of combustion at these points.

In operation, the gas is turned on at the cock 28 and ignited at the burner, through the opening 26. When the gas is ignited, air is drawn through the openings 29 in the bottom of the combustion chamber C, and is heated by the gas flames. The heated air and products of combustion pass upwardly through the front legs of the flues 15, and downwardly into the vent chamber V, the passage P permitting the heat to pass from one section of the radiator to the other. This, however, does not interfere with the normal circulation down to the vent chamber V, the heated air and products of combustion passing out through the vent opening 27, into a suitable pipe or flue and to a point outside of the room in which the radiator is located.

The advantages of the invention will be readily apparent from the foregoing. By placing the burner in a combustion chamber, located at the bottom of the front portion of the radiator, and compelling the heated air and products of combustion to first travel upwardly through the flues 15 to the top of the radiator, and then back again to the vent chamber V, the heat is distributed evenly over every part of the radiator. This will insure a maximum heating efficiency with a minimum consumption of fuel. At the same time foul and impure air is drawn into the radiator, near the floor line, through the openings 29, and carried by the circulation within the radiator to the vent chamber, and out through the vent opening. In this manner any foul and impure air within the arm which is being heated is quickly drawn out of the arm, and a genuine ventilation is provided. By properly proportioning the combustion chamber, and positioning it so that the lowest and coldest portion of the radiator will be heated first, condensation and sweating is entirely eliminated. This is a very important advantage in the operation of radiators of this type. By making the combustion chamber of uniform rectangular cross-section throughout the length of the radiator, a maximum heating space is provided and all of the sections will be uniformly heated. By constructing the vent chamber of uniform cross-section there is no choking or retarding of the products of combustion in their passage from the combustion chamber outwardly through the vent opening 27.

Having thus explained the nature of the invention and described an operative manner of constructing and using the same, although without attempting to set forth all of the forms in which it may be made, or all of the forms of its use, what is claimed is:—

1. A radiator of the character described comprising a plurality of hollow sections of approximately inverted U-shape, the lower extremity of one leg of each section having an enlarged portion of rectangular shape provided with a bottom wall having an air inlet opening therein, the lower end of each of the other legs having a transversely disposed opening means uniting said section in alignment, whereby said rectangular portions provide a combustion chamber of uniform rectangular cross section throughout the length of the radiator and said transversely disposed chambers provide a vent chamber of uniform cross-section throughout the length of the radiator, one of said sections having an outlet opening leading from the vent chamber, a burner feed pipe extending beneath the radiator and having its discharge end extending through the bottom wall of the combustion chamber, and a burner extending longitudinally within the combustion chamber and connected intermediate between its ends with the discharge end of the feed pipe.

2. A radiator of the character described comprising end sections having support means, a middle section and a plurality of filling in sections, all of said sections being hollow and of approximately inverted U-shape, the legs of the sections being disconnected from each other except at the top, said end sections having lugs extending across the space between said legs, the lower extremity of one leg of each section having an enlarged portion provided with a bottom wall having an inlet opening, the lower end of each of the other legs having a transversely disposed opening, rods extending between the legs of the section and engaging the lugs of the end sections for clamping all of said sections in alignment, whereby said enlarged portions provide a combustion chamber of uniform cross-section throughout the length of the radiator and said transversely disposed openings provide a vent chamber of substantially uniform cross-section throughout the length of the radiator, the middle section having an outlet leading from the vent chamber, a burner feed pipe extending beneath the radiator and having its discharge end extending through the middle section into the combustion chamber, and a burner extending longitudinally of the combustion chamber and connected intermediate between its ends with said feed pipe.

In testimony whereof I have hereunto set my hand.

GEORGE P. SCHMITT.