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GAS SPACE HEATER

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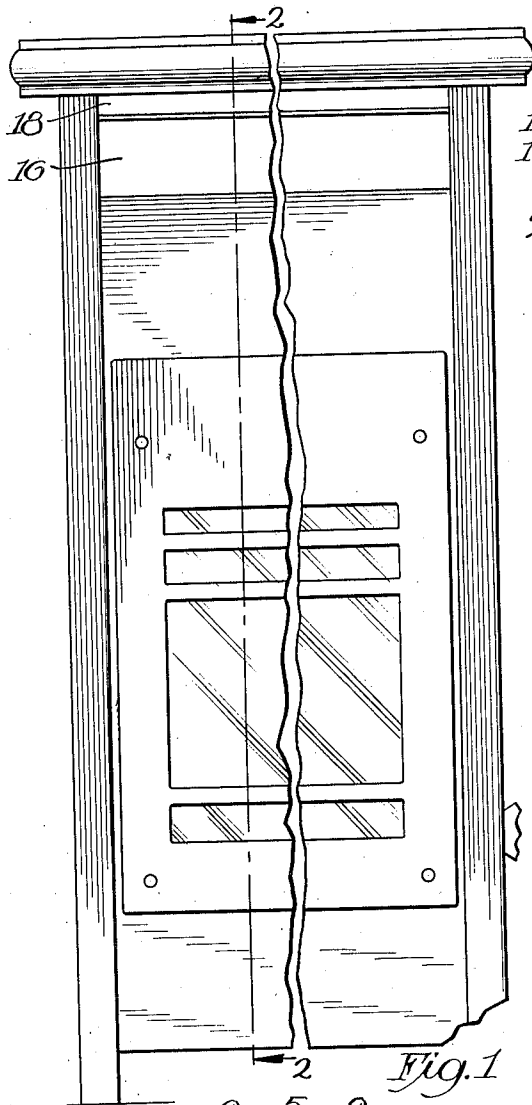


Fig. 1

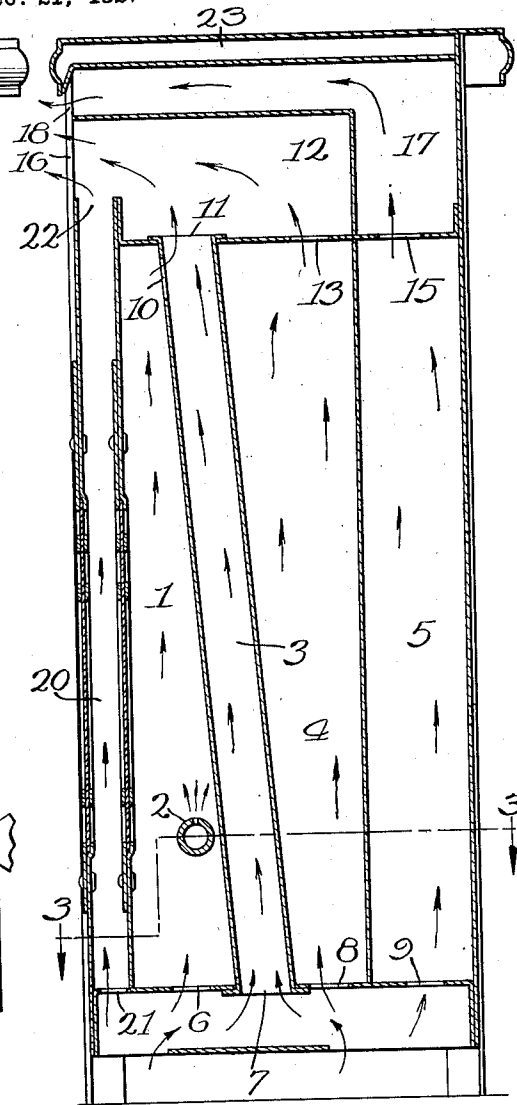


Fig. 2

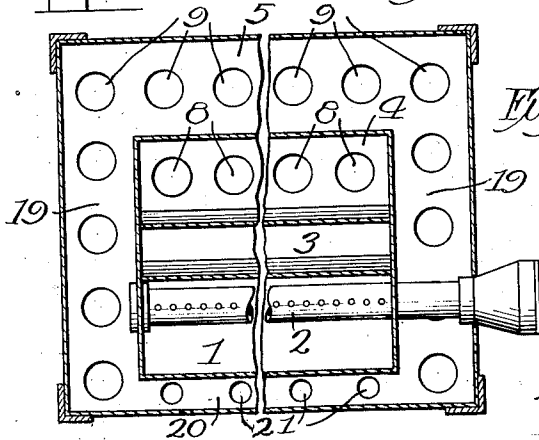


Fig. 3

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GAS SPACE HEATER.

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This invention relates to gas space heaters of the kind in which air not only passes upwardly through the combustion chamber of the heater, but also through other passages as well, so that the products of combustion are mixed with highly heated pure air before being discharged into space.

Generally stated, the object of the invention is to provide a novel construction and arrangement whereby practically all of the outer sides or surfaces of the heater are maintained at low temperature, so that practically all of the heat is absorbed by air passing through the heater, tending to prevent the radiation of heat from the outer sides or surfaces of the heater.

It is also an object to provide certain details and features of construction and combinations tending to increase the general efficiency and the desirability of a gas space heater of this particular character.

To the foregoing and other useful ends, the invention consists in the matters hereinafter set forth and claimed, and shown in the accompanying drawings, in which,—

Fig. 1 is a front elevation of a gas space heater embodying the principles of the invention.

Fig. 2 is a vertical section on line 2—2 in Fig. 1.

Fig. 3 is a horizontal section on line 3—3 in Fig. 2.

As thus illustrated, the invention comprises a body having sheet-metal walls providing an upwardly tapered or more or less wedge-shaped chamber 1, in which the gas burner 2 of any suitable character is located. An air flue 3 is provided immediately back of this combustion chamber, this flue being inclined forwardly at its upper end to thereby overhang the flame of the burner. An air chamber 4 that tapers downward is disposed back of the flue 3, and a straight, rear air-chamber 5 is provided at the back of the heater in the manner shown. Openings are provided at the bottom of the combustion chamber 1, while the flue 3 has its lower end provided with a full-width opening 7, and the chambers 4 and 5 have bottom openings 8 and 9, respectively, all these openings permitting the entrance of air at the bottom of the heater. The flue 3 has openings 10 in the front wall thereof, just below the upper end of this flue, and said flue is open at 11 at its upper end to discharge the heated

air and products of combustion from the chamber 1 and the flue 3 into the mixing chamber 12 in the upper portion of the heater. The chambers 4 and 5 have their upper ends provided with the outlets 13 and 15, respectively, so that heated air from the chamber 4 is discharged into the mixing chamber 12, and from here discharged through the opening 16 into the atmosphere of the space to be heated. Heated air passing upwardly through the chamber 5 escapes through the openings 15 into the top chamber 17, and from the latter the heated air escapes through the front opening 18 into the atmosphere, being directed downwardly into the discharge from the mixing chamber 12, so that all of the products of combustion and heated air are practically discharged together from the heater. The sides of the heater are provided with air chambers 19 which have their upper and lower ends provided with openings similar to the openings 15 and 9 previously mentioned, whereby air enters at the bottom of these side chambers and is heated and escapes into the upper chamber 17 previously mentioned. The front of the heater also has an air circulation chamber 20 formed between the two front walls, as shown, and the lower end of this chamber 20 has air-inlet openings 21 and the chamber is open at its upper end at 22, so that heated air passing upwardly through the chamber 20 escapes into the outlet portion of the mixing chamber 12 previously mentioned.

Thus the chambers 5, 19 and 20 tend to keep the outer sides of the heater cool, or at a comparatively low temperature, preventing the radiation of heat from the sides of the heater. The top of the heater has a dead air space 23 to keep the top of the heater at low temperature, thus tending to prevent radiation of heat from the top of the heater. In this way practically all of the heat from the gas burner is absorbed by air passing upwardly through the heater, and all of the products of combustion and all of the heated air are commingled or mixed before, or at least by the time, they escape through the openings 16 and 18 into the atmosphere. This mixing of highly heated air with the products of combustion serves, it is found, to insure against tainting of the air of the space to be heated with any poisonous gases, and insures some humidity,

thus producing an air that is entirely satisfactory for breathing purposes.

It will be understood that by gas is meant any suitable fluid fuel.

5 It will be understood that the heater is provided with a door, of any suitable character (not shown), for providing access to the burner for lighting the latter.

Without disclaiming anything, and without prejudice to any novelty disclosed, what I claim as my invention is:

1. In a gas space heater, the combination of means forming an upright combustion chamber, with a lower air inlet and an upper outlet for said combustion chamber, an air flue back of said combustion chamber, an air chamber back of said flue, said air chamber having a lower inlet and an upper outlet, and a hollow back in rear of said air chamber, said hollow back having a lower air inlet and an upper outlet for discharging heated air into the discharge from the combustion chamber.

2. A structure as specified in claim 1, comprising a mixing chamber to receive the discharge from the said combustion chamber and flue and air chamber, and a separate discharge chamber for receiving the heated air from said hollow back, said mixing chamber and said discharge chamber having adjacent outlets serving to immediately mix the discharge from one chamber with that of the other.

3. A structure as specified in claim 1, comprising hollow sides for the heater, said sides having a lower inlet and an upper outlet for air, tending to keep the sides of the heater at low temperature, said heater having front discharge means for all of said outlets to commingle the entire discharge.

4. A structure as specified in claim 1, comprising hollow sides for the heater, said sides having a lower inlet and an upper outlet for air, tending to keep the sides of the heater at low temperature, a mixing chamber for receiving the products of combustion and air from said combustion chamber and flue and air chamber, and a separate chamber for receiving the discharge of heated air from said hollow back and said hollow sides, said separate chamber and said mixing chamber having adjacent outlets at the front of the upper portion of the heater.

5. A structure as specified in claim 1, comprising means forming a hollow front for the heater, serving as an air passage tending to keep the front of the heater at low temperature, said hollow front having a lower inlet and an upper outlet, said heater having front discharge means for all of said outlets to commingle the entire discharge.

6. A structure as specified in claim 1, comprising means forming a hollow front for the heater, serving as an air passage tending to keep the front of the heater at

low temperature, said hollow front having a lower inlet and an upper outlet, and hollow sides for the heater, in combination with means at the top of the heater for commingling the discharge of all of the air and products of combustion passing upwardly through the heater.

7. In a gas space heater, the combination of a combustion chamber and one or more pure-air flues or passages extending upwardly of the heater, a discharge opening for the combustion chamber and one or more of the pure-air passages in the upper front portion of the heater, and a separate discharge opening for one or more of the other pure-air passages, disposed immediately above said first mentioned discharge opening and whereby heated pure air is discharged to mix with the discharge from said other opening.

8. A structure as specified in claim 7, one of said pure-air passages having an opening in one wall thereof for receiving products of combustion from the combustion chamber.

9. In a gas space heater, the combination of means forming an upright combustion chamber, with a lower air inlet and an upper outlet for said combustion chamber, an air flue back of said combustion chamber, an air chamber back of said flue, said air chamber having a lower inlet and an upper outlet, and a hollow back in rear of said air chamber, said hollow back having a lower air inlet and an upper outlet, comprising a mixing chamber to receive the discharge from the said combustion chamber and flue and air chamber, and a separate discharge chamber for receiving the heated air from said hollow back, said mixing chamber and said discharge chamber having adjacent outlets serving to immediately mix the discharge from one chamber with that of the other.

10. In a gas space heater, the combination of means forming an upright combustion chamber, with a lower air inlet and an upper outlet for said combustion chamber, an air flue back of said combustion chamber, an air chamber back of said flue, said air chamber having a lower inlet and an upper outlet, and a hollow back in rear of said air chamber, said hollow back having a lower air inlet and an upper outlet, comprising hollow sides for the heater, said sides having a lower inlet and an upper outlet for air, tending to keep the sides of the heater at low temperature, a mixing chamber for receiving the products of combustion and air from said combustion chamber and flue and air chamber, and a separate chamber for receiving the discharge of heated air from said hollow back and said hollow sides, said separate chamber and said mixing chamber having adjacent outlets at the front of the upper portion of the heater.

11. In a gas space heater, the combination of means forming an upright combustion chamber, with a lower air inlet and an upper outlet for said combustion chamber, an air
5 flue back of said combustion chamber, an air chamber back of said flue, said air chamber having a lower inlet and an upper outlet, and a hollow back in rear of said air chamber, said hollow back having a lower air inlet and an upper outlet, comprising means
10 forming a hollow front for the heater, serving as an air passage tending to keep the front of the heater at low temperature, said hollow front having a lower inlet and an upper outlet, and hollow sides for the heater,
15 in combination with means at the top of the heater for commingling the discharge of all of the air and products of combustion passing upwardly through the heater.

Specification signed this 14th day of Dec., 20 1927.

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