

Aug. 16, 1932.

M. W. WOOD

1,871,574

GAS HEATER STOVE

Filed July 21, 1930

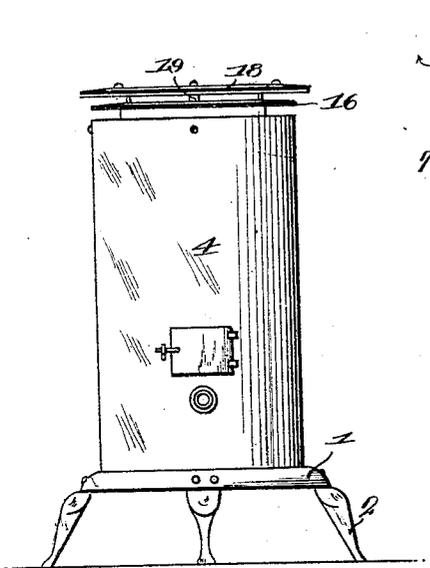


Fig. 1.

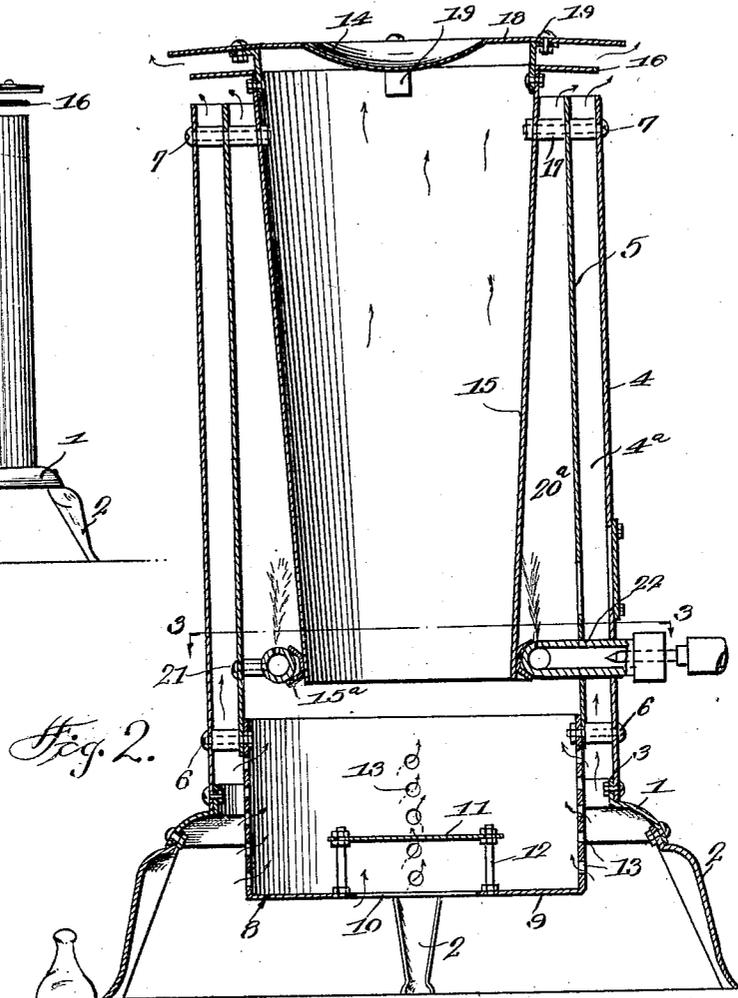


Fig. 2.

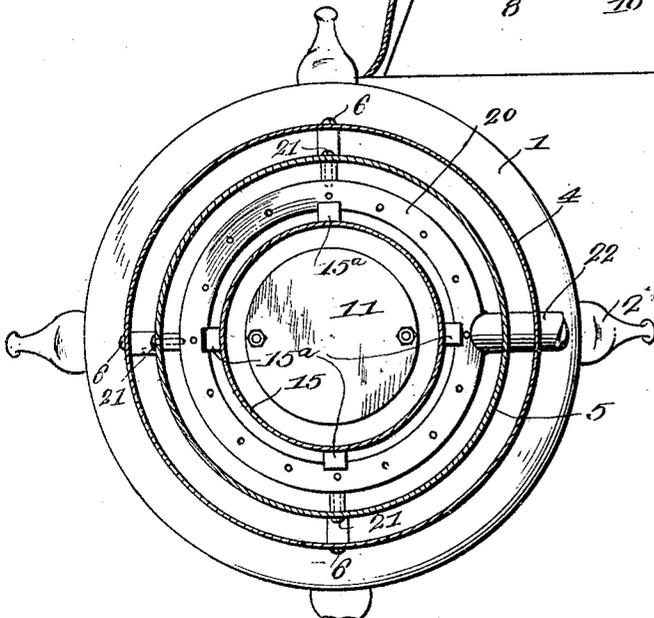


Fig. 3.

INVENTOR  
M. W. Wood  
BY *Munn & Leo.*  
ATTORNEY

## UNITED STATES PATENT OFFICE

MYRON W. WOOD, OF WICHITA, KANSAS

GAS HEATER STOVE

Application filed July 21, 1930. Serial No. 469,596.

This invention relates to stoves and more particularly to gas heaters in which is used either natural or artificial gas.

Many years in studying combustion and in experimenting with various fuels has disclosed the fact that complete combustion is never obtained in the same way when using different kinds of fuel. It has been found when using natural or artificial gas a proper mixture cannot be obtained by mixing the gas and air before combustion and that the mixing process must be finished in the flame.

A primary object of the invention is to so construct a heater of this character that there will be a complete combustion of the fuel resulting in the elimination of all fumes as well as the utilization of all of the heat units contained in the fuel.

Another object is to so construct such a heater that fresh air will be fed to the flame on all sides and throughout its entire height avoiding all possibility of the escape of any unburned gases with the heat.

Still another object is to provide a gas heater in which the cold air is drawn from the floor and so forced out after being heated that it will travel all over the house and insure an even temperature throughout.

Another object is to so construct such a heater that it will consume a minimum amount of fuel with the production of a maximum amount of heat while at the same time insuring complete combustion of the fuel.

In carrying out these objects, the invention is susceptible of a wide range of modification without departing from the spirit or sacrificing any of the advantages of the claimed invention; there being shown in the drawing for illustrative purposes a preferred and practical form, in which:

Figure 1 represents a front elevation of a gas heater constructed in accordance with this invention;

Fig. 2 is a vertical section on a larger scale; and

Fig. 3 is a horizontal section on the line 3-3 of Fig. 2.

In the embodiment illustrated the heater constituting this invention comprises an annular base 1 supported by legs 2 and having

an upstanding flange 3 with a cylindrical casing 4 rising from said flange and bolted or riveted thereto.

A concentric shell or inner casing 5 is mounted within the casing 4 and spaced radially therefrom being secured to the outer casing by spacer carried bolts 6 and 7. The casings 4 and 5 form a double-walled air chamber 4a extending throughout the height of the stove and open at both ends for the free passage of air therethrough from the bottom towards the top.

Depending from casing 5 and secured by bolts 6 thereto is a floor protecting pan 8, the bottom 9 of which has a central air inlet opening 10. An air deflecting plate 11 is arranged over and above the opening 10, being shown supported by legs 12. The side walls of the pan 8 have a plurality of series of air inlet apertures 13 so that air will enter the pan freely therethrough and through the bottom opening 10.

Centrally disposed within the casing 5 is a hollow inverted truncated cone-shaped open ended casing 15 the smaller end of which is located above and adjacent the top of the pan 8 and is arranged within an annular burner 20. This smaller lower end of the casing 15 is secured to the burner by brackets 15a leaving sufficient space between the burner and the cylinder to permit the free passage of air between them. The upper larger end of the casing 15 extends above the double-walled casing of the stove and is outturned to form a flange 16 which overlies the ends of the casings 4 and 5 and operates as a deflector for the heated air passing upward as will be presently more fully described. This casing 15 is held in place by the bolts 7 which unite the upper ends of the casings 4 and 5 and which are equipped with spacers 17 to hold the casings 15 and 5 in properly spaced relation.

A top plate 18 is spaced above casing 15 and extends radially beyond the side walls of the casing 4. This plate is supported by a plurality of L-shaped brackets 19 which connect it to the casing as is shown clearly in Fig. 2. The plate 18 has a bowl or dish-shaped central portion 14 which operates as a

spreader for the heated air rising through the casing 15.

The perforated burner 20 is held in position by bolts 21 and a gas supply pipe 22 with the gas outlet apertures formed in the upper wall thereof as is shown clearly in Figs. 2 and 3.

It will thus be seen that the casing 15 which has its smaller lower end extended just below the burner 20 flares gradually towards its top or upper end providing an upwardly and outwardly slanting flame tube for the following of the flame issuing from the burner. The flame following this tube heats the air passing upward through the casing 15 which and when it contacts the top plate 18 is deflected outwardly into the surrounding atmosphere. The combustion chamber 20a which is formed between the inner shell or casing 5 and the truncated inverted cone-shaped casing 15 decreases in width from its lower towards its upper end and the flame from the burner 20 is caused to follow the flared wall of the casing 15. The fresh air filled with oxygen enters the combustion chamber 20a through the pan 8 on both sides of the burner 20 and passing upward therethrough mingles with the gas from the burner where it burns throughout the entire length of the flame tube or combustion chamber 20c, thus insuring complete combustion of all the fuel elements. It will thus be seen that when the heat passes out of the top of the stove there can be no unburned gases commingled with it. The air entering and passing on both sides of the burner ring materially assists in the consumption of fuel elements. This upward passage of the heated air also operates to draw the cold air from the floor and force it out heated at the top of the stove so that it will travel to the furthest corner of the house insuring an even temperature throughout.

The air passing upward through chamber 4a between the casings 4 and 5 operates to keep the outer casing cool and protect it against the intense heat from the combustion chamber so that should said outer casing be painted or enamelled it will not be discolored from the heat.

Furthermore the supply of gas to the burner 20 is so controlled and set that it cannot be disturbed after once being adjusted and a proper amount sufficient to commingle with the air entering in the manner above described is provided and hence cannot be tampered with by unauthorized persons.

A heater constructed as herein shown and described of this type of medium size will heat approximately five thousand cubic feet of room space in any climate and the burner used in connection with such a stove consumes only about two-thirds of the amount of gas which is used in one burner of an ordinary gas cook stove. It has also been

found that a heater constructed as herein shown and described will heat eight times the room space of the ordinary gas heater on the market with the same consumption of gas.

It will thus be seen that one of the main features of the invention resides in the complete combustion obtained by the air entrance to the flame all the way to the top of the combustion chamber due to the flame being forced to follow up the slanting inner casing wall. No unburned gases can get through. Another important feature is the circulation of the air whereby the cold air is drawn from the floor and forced out heated being so deflected that it travels to the farthest corner of the house.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will, of course, be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention or its scope as claimed.

I claim:

A gas heater comprising an outer cylindrical casing, a pan secured to and depending from the lower end of said casing, and having a bottom with a central air inlet therein, an air deflector arranged above said opening, a hollow inverted truncated cone-shaped open ended casing supported in said outer casing with its lower smaller end terminating short of said outer casing and its upper end extended above it, said casings being spaced radially from each other to form a combustion chamber tapering towards its upper end, an annular burner arranged between the lower end of said inner casing and the outer casing spaced from both but nearer to the inner casing whereby the flame is caused to follow the inclined wall of the inner casing, the side walls of said pan being apertured to supply air to the combustion chamber outside the burner and feed the flame throughout its length.

MYRON W. WOOD.