

March 7, 1933.

E. C. ADAMS

1,900,217

GAS BURNER

Filed March 6, 1931

Fig. 1.

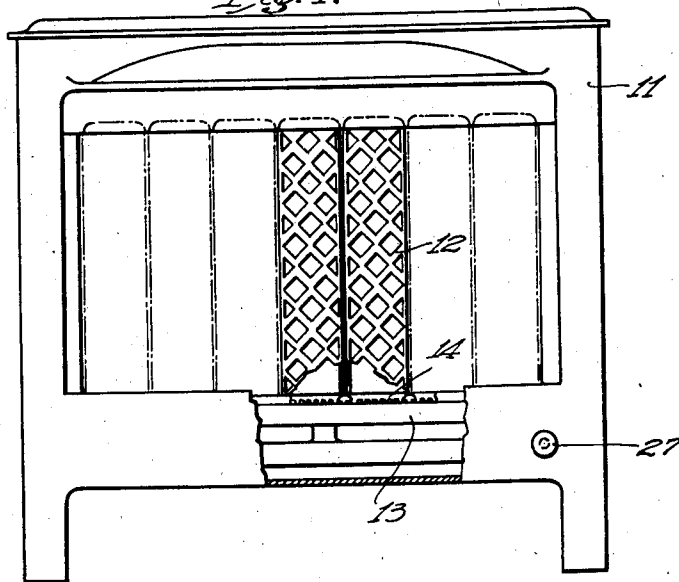


Fig. 2.

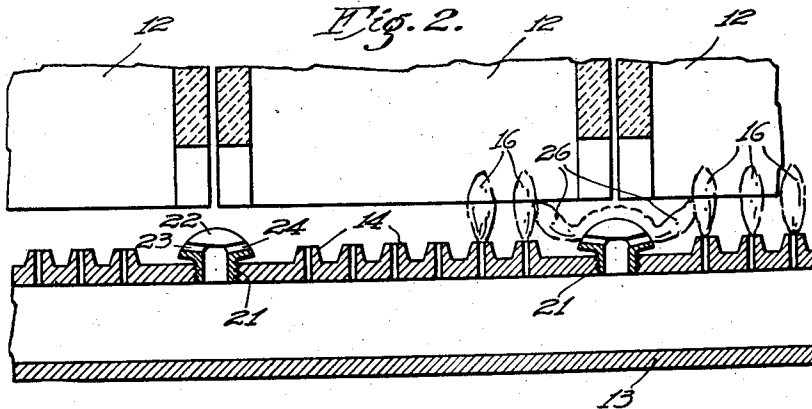
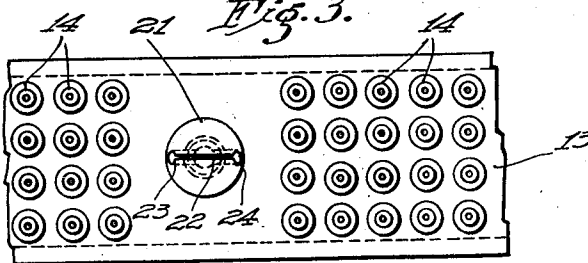


Fig. 3.



INVENTOR

Edwin C. Adams.

BY

N. M. Bichel
ATTORNEY

UNITED STATES PATENT OFFICE

EDWIN C. ADAMS, OF PITTSBURGH, PENNSYLVANIA

GAS BURNER

Application filed March 6, 1931. Serial No. 520,571.

My invention relates to heaters and more particularly to gas burners.

An object of my invention is to provide a continuously operative automatic means operatively associated with an extended gas burner to ensure the quick and smooth ignition of a plurality of gas flames located non-gas-igniting distances apart.

Another object of my invention is to provide a spreader flame located between the main gas-burner ports to effect travel of the flame from one main gas-burner port to the next adjacent one.

In practicing my invention, I provide a gas-burner manifold having a plurality of sets of substantially-laterally-extending main gas-burner ports, which are spaced relatively large distances apart, and locate therebetween a spreader-flame auxiliary gas-burner port whose flame extends substantially longitudinally of the manifold to cause the flame from one of the main ports to effect ignition of the gas issuing from the next main port separated therefrom a large non-gas-igniting distance.

In the single sheet of drawing,

Figure 1 is a view, mainly in front elevation, of a gas-burner room heater in which is incorporated the device embodying my invention,

Fig. 2 is a fragmentary view, in vertical section, showing more particularly the device embodying my invention in operation, and,

Fig. 3 is a top plan view of a portion of a gas-burner manifold illustrating my invention.

I have shown, generally only, a portable room heater utilizing gas as fuel and embodying a casing 11, which may be of any suitable construction, size, and shape, and as this casing constitutes no particular part of my present invention, it is not deemed necessary to describe it in greater detail except to note that it includes an open front in which are located a plurality of clay radiants 12 of the kind now used in radiant gas heaters. The radiants 12 have each an open face and are suitably supported within the open front casing in any desired manner.

A gas burner manifold 13 is located below

the radiants in substantially horizontal position and is provided with a plurality of sets of main gas-burner ports 14, which main ports extend substantially laterally of the manifold so that the flame of the burning gas issuing from the main ports extends at substantially right angles to the manifold, as is shown in Fig. 2 of the drawing. The main gas-burner ports are located immediately below the inside of the respective radiants, as is shown more particularly in Fig. 2 of the drawing.

It may be noted further that a plurality of main gas-burners ports 14 are provided in each set located relatively close together in order to provide a plurality of relatively small intense, high and vertical gas flames indicated at 16, which flames extend into the lower portion of the respective radiants to heat them and thereby radiate the heat outwardly from the casing. As the thickness of the side walls of the radiants is relatively large and as there are two thicknesses closely adjacent to each other, there will be a relatively large space between the adjacent main gas-burner ports of two sets of main ports.

As it is not considered desirable or permissible to locate one or more of the main gas-burner ports immediately below the side walls of the radiants, the distance between the spaced sets of main ports is so great that ignition of the gas issuing from one end port in one set, from the burning gas issuing from the end port in the next adjacent set will not occur, or stating it in other words, the distance therebetween is a non-gas-igniting distance. This condition is also aggravated, to some extent, by the fact that the flames 16 extend up into the interior of the radiant, and the net result is that one set of main burner ports will not be ignited from the flames of the next adjacent set of main ports. This condition is a very undesirable one as it prevents travel of the flame from the main gas-burner ports at one end of the manifold to the main gas-burner ports at the other end of the manifold in a smooth and non-explosive manner. That is, if the set of ports 14 under say the right hand radiant are

lit by an operator, the flame will not travel smoothly toward the left without further manual ignition.

In order to effect such flame travel quickly and smoothly, as well as automatically, I provide auxiliary connector or spread-flame ports 21 between two adjacent sets of main burner ports. The auxiliary ports 21 are of substantially mushroom shape, the orifice therein including a central slot 22 and two circular slightly larger openings 23 and 24. The outer surface of the head of the auxiliary port is of substantially arcuate shape, as is shown particularly in Fig. 2 of the drawing, and the shape of the flame issuing therefrom is shown at 26 in Fig. 2 of the drawing. It will be noticed that the shape of the auxiliary port and of the slot therein is such as to provide a connector or spreader flame whose height laterally of the manifold is relatively small, but which is provided with substantially horizontally and longitudinally extending spreader flame portions. Such spreader flames have been found to be effective to cause the flame to travel from one set of burner ports to the next adjacent set of main burner ports with great rapidity and certainty, thereby overcoming the tendency toward accumulation of unburned gas in the radiants, when it has not been ignited by the operator all along the manifold. It may be noted that both the main and the spreader flame ports are controlled by a single gas cock or valve 27 properly located in the gas burner manifold.

The device embodying my invention thus provides a relatively simple and compact, as well as highly efficient continuously-operative means, embodying a low horizontally-extending connector-flame for causing a flame to travel from one end of a gas-burner manifold to the other end thereof along a plurality of sets of main gas-burner ports providing high vertical flames, which are spaced apart relatively large distances too great to ensure or effect the ignition of gas issuing from one main port by the burning gas issuing from the next adjacent main port.

While I have illustrated and described a particular device embodying my invention, it is obvious that my invention may be used in other gas-burner devices embodying an extended gas-burner manifold.

Various modifications may be made in the device embodying my invention without departing from the spirit and scope thereof, and I desire therefore that only such limitations shall be placed thereon as are imposed by the prior art or are set forth in the appended claims.

I claim as my invention:—

1. A gas burner having a plurality of sections of main burner ports provided on the surface thereof with said sections so spaced

as to impair flame travel from one section to the next and a spreader flame port disposed in the space between said sections of main burner ports, said spreader port being so constructed as to effectively and automatically carry a flame from one adjacent section of main burner ports to the next.

2. A gas burner comprising a gas manifold common to the whole burner having a plurality of spaced sections of main burner ports and flame-spreading ports on the surface thereof, said flame-spreading ports being provided in the space between said sections of main ports and so constructed as to carry the flame from one main port section adjacent thereto to the other.

3. A sectional type gas burner for radiant heaters comprising a burner manifold having a plurality of sections of grouped burner ports spaced thereon to register with the lower ends of the radiants of the heater and adapted to project their flames axially into the radiants and flame-spreading ports disposed between said sections of grouped ports, said flame-spreading ports being so positioned and constructed as to produce a low wide flame adapted to ignitably connect said sections of grouped ports, whereby when one of said grouped port sections is lighted the flame will effectively and rapidly spread across the burner.

4. A sectional type gas burner for radiant heaters comprising a gas manifold having a flat upper surface provided with a plurality of spaced sections and grouped burner ports along the length thereof and a flame tip fitted in a port communicating with said manifold in each space between the adjacent ends of said grouped port sections, each of said tips having a slotted orifice in the top thereof adapted to produce a low wide flame and arranged so as to direct its flame against the adjacent sections of grouped ports.

5. A combined elongate burner and manifold for radiant heaters and the like having a plurality of sections of grouped main burner ports arranged in spaced relation along the length of the burner, the spacing between said sections being such as to permit the lower ends of the radiants of the heater being mounted over the grouped burner ports whereby their flames will project into the radiants, and a flame-spreading burner tip mounted in a port provided in the manifold in the space between the adjacent ends of the sections of grouped burner ports, said tip being so positioned and constructed as to control the gas flow therefrom in such a way as to insure the flames from one section of grouped burner ports being conducted to the next when lit.

In testimony whereof, I have hereunto subscribed my name this 4th day of March, 1931.

EDWIN C. ADAMS.