April 23, 1929. H. C. DANIELS 1,710,147

BURNER FOR GAS HEATERS

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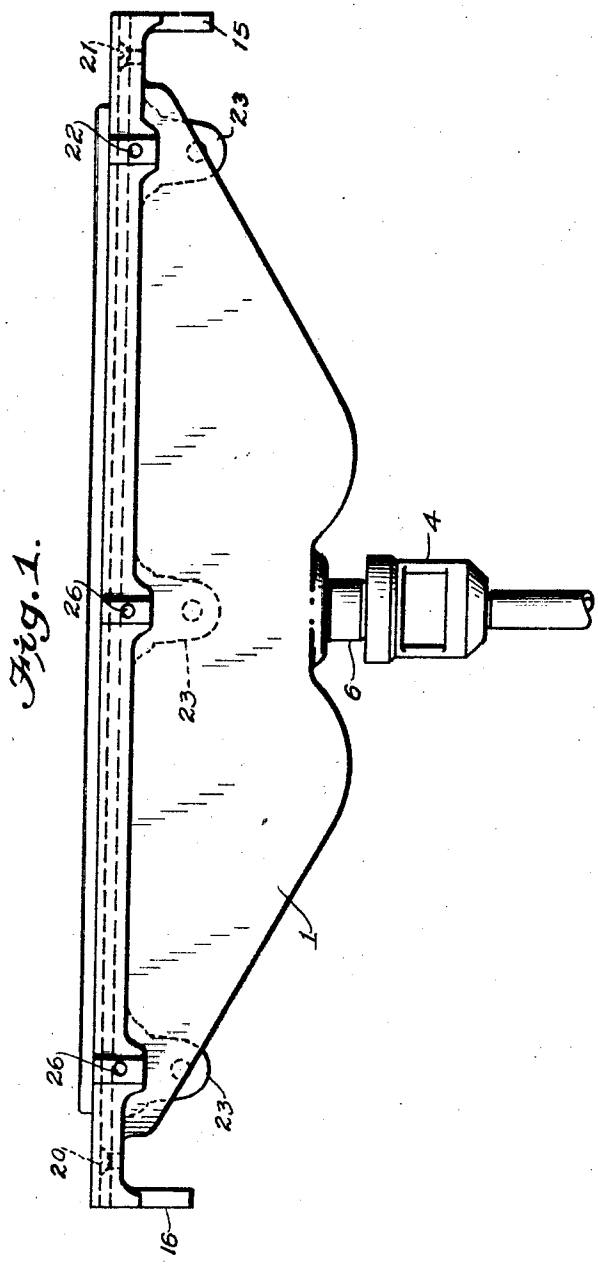


Fig. 1.

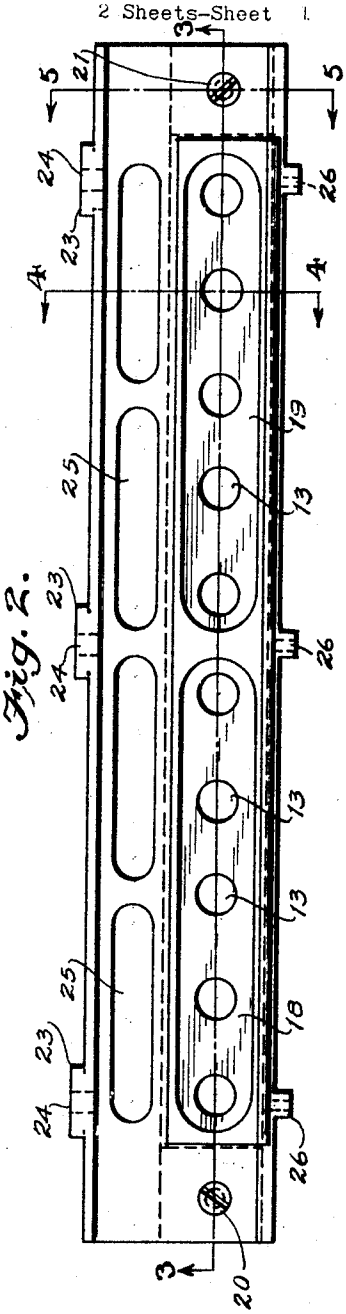


Fig. 2.

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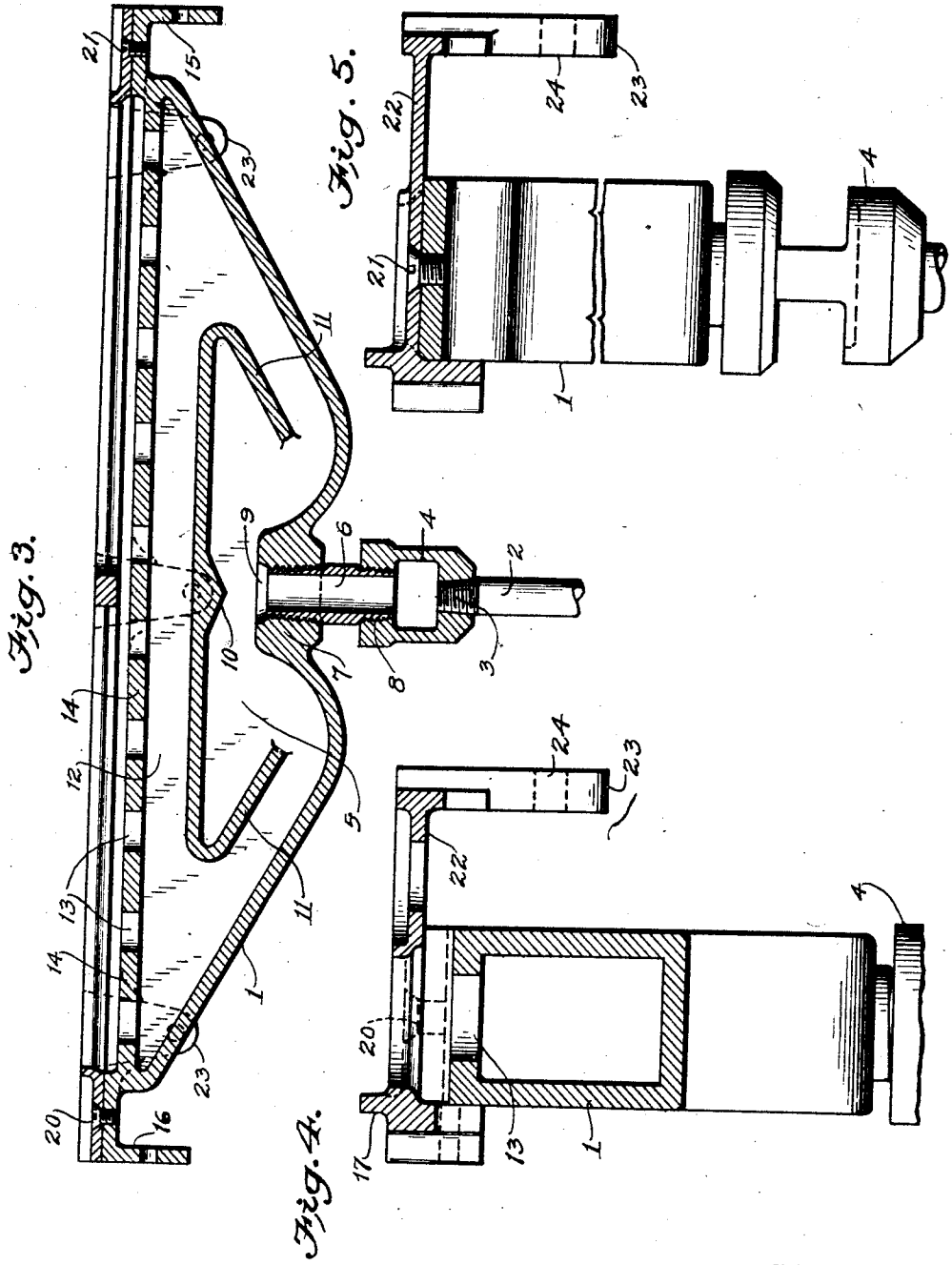
BY

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UNITED STATES PATENT OFFICE.

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BURNER FOR GAS HEATERS.

Application filed November 10, 1927. Serial No. 232,302.

This invention relates to improvements in burners particularly adapted for a gas heater.

An object of this invention is to provide a radiant gas burner which will burn natural or artificial gas, the construction of which is extremely simple, but efficient.

A further object of this invention is to provide a burner adapted for a gas heater in which the gas may be taken into the bottom of the burner adjacent a gas and air mixer which is located at the entrance of the burner, air being taken in by the mixer and allowed to flow into the body of the bottom of the burner.

A further object of this invention is to provide a gas burner which is so equipped that it may be used as a Bunsen burner or with an adjustable valve and mixed for burning artificial, coal, water or any other kind of gas, and will make a perfect combustion without fumes.

Other objects of this invention will appear from the following detailed description of the device and as disclosed in the two sets of drawings which are herewith made a part of this application.

In the drawings—

Figure 1 illustrates a side elevational view of the burner in operative relationship with a gas mixer and a support for the burner.

Figure 2 represents a top plan view of Figure 1.

Figure 3 illustrates a sectional view of Figure 2 taken along line 3—3.

Figure 4 illustrates a sectional view of Figure 2 taken along line 4—4.

Figure 5 represents a sectional view of Figure 2 taken along line 5—5.

Numeral 1 designates a main body portion of the burner, which may be made out of cast iron, stamped steel or any other suitable material, and formed having a plurality of chambers therein in open communication with each other. Gas is supplied to the burner from some source through a tubular connection 2 which is properly threaded for connection with the air and gas mixer 4. The chamber 5 in the main body portion 1 of the burner is brought into open communication with the gas and air mixer 4 by means of a suitably formed pipe coupling 6 pivotally threaded at both ends for connection with a portion 7 of the burner and a portion 8 of the mixer. It is apparent, therefore, that the gas in this invention will function to enter the chamber 5, or the lower reservoir, through an opening 9. Upon entering the chamber 5, the gas will function to impinge against a downwardly projecting portion 10 of the partition 11, which forms one wall of the chamber 5, and the downwardly projecting portion 10, being positioned directly over the intake 9, will function to equally divide the flow of the gas and cause it to move in two directions, passing from the chamber 5 into an upper chamber or reservoir 12, from which the gas will pass through the openings 13 in the burner tips 14. The openings 13 are so arranged that each tip will function to break the gas up for the purpose of igniting.

In the construction of the burner, according to this invention, it is preferred that chambers 5 and 12 be equally spaced in relationship to the intake 9, the portion 7 of the burner is provided with a shoulder portion for the purpose of receiving the threaded end of the pipe coupling 6. Each end of the main body portion 1 of the burner is provided with outwardly and downwardly extending bracket portions 15 and 16 for receiving any fastening elements which may be found desirable.

In order to provide proper means for supporting the burner in this invention, it is preferred that a bracket or back wall support, as clearly disclosed in the figures of drawings, be used wherein numeral 17 designates a bracket support made of any suitable material, such as cast iron or steel, and having arranged therein a plurality of openings 18 and 19 through which the gas flames from the openings 13 in the burner may extend. The main body portion 1 of the burner is securely fastened in alignment with the openings 18 and 19 of the bracket 17 by means of suitable fastening elements 20 and 21. The bracket 17 projects a suitable distance from one longitudinal edge of the burner, as clearly disclosed in Figures 2, 4 and 5, the overlapping or projecting edge of the bracket 22 is provided with downwardly extending lug portion 23, having openings 24 therein through which suitable fastening elements may extend for connection with a wall or otherwise. The overlapping section of the bracket 22 is preferably provided with a plurality of openings 25 for economy in construction and as a nonconductor of heat.

In addition to the fastening elements 20 and 21 for connecting the bracket 17 and main body portion 1 of the burner together, openings 26 are provided in the bracket portion through which fastening elements may extend into the main body portion 1 of the burner.

In operation, this invention lies in a radiant gas burner which is adapted to use either natural or artificial gas. The gas will enter the burner through the opening 9, after being mixed with air, and the flow of the gas will be equally divided in the chambers 5 and 12 in such a manner that the mixed air and gas will follow the upper reservoir 12, equally distributing the gas along the tips and through the openings for ignition. The tips 14 are the outlets for the gas and it is there broken up and should burn with a blue flame which proves perfect combustion, the top reservoir 12 is maintained full of gas and the longer the gas burns the hotter the chamber 12 becomes until it functions practically as a superheater and the gas becomes hotter before it burns. The tips are ordinarily made of lava and are spongy so that they will function to break up the gas, making it burn perfectly and without needless fumes. The gas, through the structural features disclosed in this invention, functions to come to the top of the burner and every outlet for the gas is preferred to be of like construction and size. It is to be understood that alterations and substitutions may be made in the above disclosure within the scope of the appended claims without affecting the merits of this invention.

What I claim is:

1. In a gas burner, a main body portion comprising a chamber, a partition therein for dividing the chamber into compartments, the partition being formed having inwardly and downwardly extending end portions, an inlet opening equally spaced from the ends of the main body portion for allowing the gas to enter the chamber, the lower surface of the partition being provided with an inwardly extending knife shaped shoulder portion located directly over the inlet opening for the purpose of dividing the flow of gas through the inlet equally on each side thereof as it impinges against the knife shaped shoulder.

2. In a gas burner having a hollow main body portion, a partition therein for forming upper and lower chamber portions in open communication with each other, an inlet opening clearly spaced from the ends of the main body portion for allowing gas to enter the chambers and flow therefrom through suitably formed tips in the main body portion, the partition being formed having inwardly and downwardly extending end portions and a downwardly extending shoulder portion directly over the inlet opening for the purpose of dividing the flow of gas through the inlet equally on each side thereof as it impinges against the shoulder portion.

3. In a gas burner having a hollow main body portion, a partition therein for forming upper and lower chamber portions in open communication with each other, an inlet opening clearly spaced from the ends of the main body portion for allowing gas to enter the chambers and flow therefrom through suitably formed tips in the main body portion, the partition being formed having inwardly and downwardly extending end portions and a downwardly extending shoulder portion directly over the inlet opening for the purpose of dividing the flow of gas through the inlet equally on each side thereof as it impinges against the shoulder portion, tips for the burner constructed in such a manner that each tip will break the gas up as it flows therethrough to the point where the gas is ignited.

4. In a gas burner having a hollow main body portion, a partition therein for forming upper and lower chamber portions in open communication with each other, an inlet opening clearly spaced from the ends of the main body portion for allowing gas to enter the chambers and flow therefrom through suitably formed tips in the main body portion, the partition being formed having inwardly and downwardly extending end portions and a downwardly extending shoulder portion directly over the inlet opening for the purpose of dividing the flow of gas through the inlet equally on each side thereof as it impinges against the shoulder portion, tips for the burner constructed in such a manner that each tip will break up the gas as it flows therethrough to the point where the gas is ignited, the inlet opening being provided with suitable fittings for supporting a gas and air mixer.

In testimony whereof I affix my signature.

HERMAN CLIFTON DANIELS.