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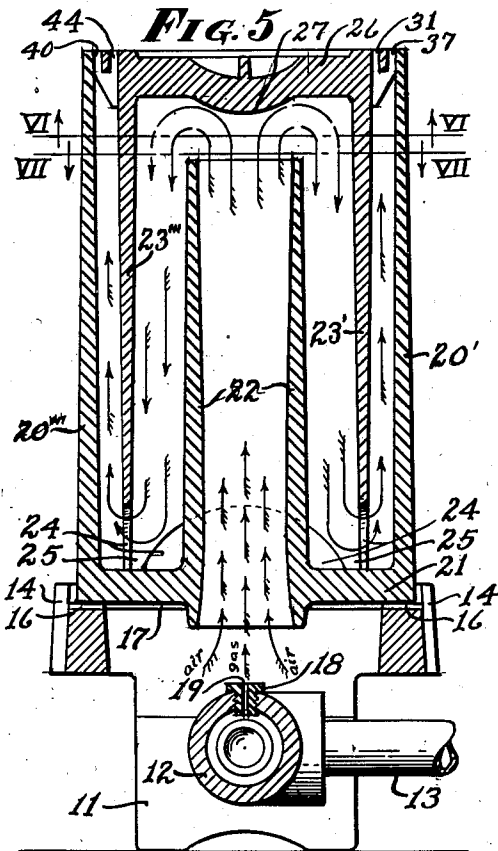
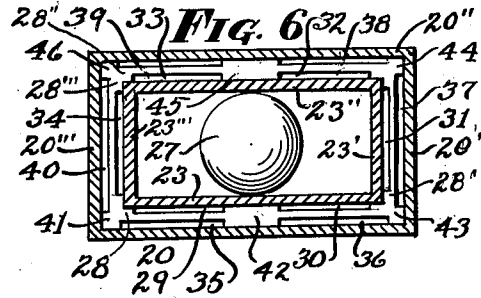
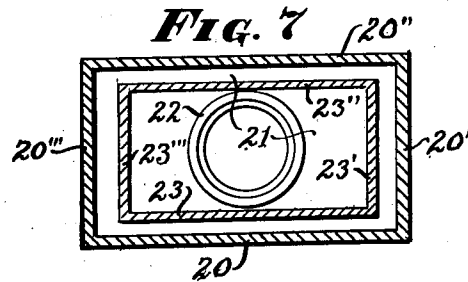
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GAS BURNER AND ASSEMBLY THEREFOR

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GAS BURNER AND ASSEMBLY THEREFOR

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8 Claims. (Cl. 158—106)

My invention relates to an improvement in gas burners and an assembly therefor.

The objects of my invention are; to provide a gas burner that is easy to assemble, easy to make repairs or replacements, and a burner that will operate on low gas pressure and at the same time have a high efficiency.

Referring to the drawings; Fig. 1 is a side view of my gas burner. Fig. 2 is an end view of Fig. 1. Fig. 3 is a plan view of Fig. 1 with one of the burners removed for convenience of illustration. Fig. 4 is a sectional view of the burner supporting frame as seen from the line IV—IV in Fig. 3. Fig. 5 is a sectional view of the burner and assembly as seen from the line V—V in Fig. 3. Fig. 6 is a sectional view of the burner as seen from the line VI—VI in Fig. 5. Fig. 7 is a sectional view of the burner as seen from the line VII—VII in Fig. 5.

The drawings show a gas burner having two burner units A and B, however it is understood that the burner may be made with any number of burner units such as one, two, four, six, eight, ten, twelve or more as desired.

In the drawings is shown a gas burner frame 10 supported on legs or standards 11 and 11' between which is a gas manifold 12 which is to be supplied with gas through a pipe 13 which connects to the manifold 12 as shown in Figs. 2, 3, and 5. The frame 10, legs 11 and 11' and manifold are made integrally or all in one casting. At spaced intervals on the frame 10 are upwardly projecting flange like elements 14, said flanges being short and right angled in shape and integrally connected to the frame element 10 and positioned rectangularly with respect to each other to receive the four corners of a rectangular shaped burner 15 and 15' seated therein, by which means the said burners are spaced apart to provide an air circulating means between the said burners. In the corners of said upward projecting flanges 14 are portions 16 raised above the frame element 10 and on which rest the four corners of the burner. This provides an air space 17 between the bottom of the burner and the frame 10, and the burners 15 and 15' set loosely upon the portions 16 above described, each burner being independent of the other and separately removable. The manifold is provided with removable gas jets 18, one for each burner, said gas jets being threaded into the manifold as shown in Fig. 5. These gas jets are provided with a hole 19 for the gas to jet through from the manifold 13. These jets may be made with different size holes 19 and the jets may be removed

from the manifold 12 and be replaced with jets having a different size hole such as is necessary for the proper function of the burner on the gas pressure being used.

The burner is composed of a box like unit having four sides 20, 20', 20'', 20''' and a base 21, cast integrally. The base 21 carries a Venturi tube element 22 which registers over the jet 18 in the manifold 12. The base of the Venturi tube 22 extends below the base 21, while the top of the tube 22 extends a considerable distance above the base 21.

The top cover of the box just described, is an inverted box having four side elements 23, 23', 23'', and 23''' each cut away as at 24 as gas ports and the corners such as 25 thus formed act as legs resting on the base 21 as a support for the inverted box. The top of this inverted box has a cover 26 upon the under side of which is formed a portion of a spherical element 27 which registers above the upper end of the tube 22. The cover 26 is provided with an outwardly projecting flange 28, 28', 28'' and 28''' extending around the four sides of the inverted box to meet the upper edge of the walls 20, 20', 20'', 20''' of the first box like element described. These flanges are provided with slots 29, 30, 31, 32, 33 and 34, and cut away portions to form slots 35, 36, 37, 38, 39 and 40, between the flanges 28, 29, 30 and 31 and the side walls 20, 20', 20'' and 20''' of the first described box like element, said slots functioning as gas ports, attention being drawn to the blank spaces 41, 42, 43, 44, 45 and 46 which provide a space for a secondary air supply between the gases coming from the slots adjacent thereto.

The gas under pressure received in the manifold 12 passes through the jet hole 19 where it and air enter the tube 22 and pass upwardly striking the top elements 27 and 26 and travel downwardly in the second described box like element and pass through the ports 24 and then travel upwardly in the first described box like element and pass out through the slots 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39 and 40 where combustion is taking place and secondary air is being supplied between and to the flames through the spaces at 41, 42, 43, 44, 45, and 46 thereby insuring complete combustion of the gases being emitted from the burner. During the course of travel of the gas and air through the burner as above described the gas is thoroughly mixed with the air and again supplemented with air at the point of emission from the burner which provides an ideal condition of the fuel for combustion and permits

the burner to be operated on low pressure gas without sputtering or back flashes.

Such modifications of my invention may be employed as lie within the scope of the appended claims without departing from the spirit or intention of my invention. Now having fully described my invention, what I claim as new and desire to secure by Letters Patent is;

1. In a gas burner, a box like element having sides and an open top and a closed bottom, a tubular element, said tubular element being open at both ends and vertically positioned within the box like element and being integral with said bottom and passing therethrough as a means of transmitting fuel into the burner, a second box like element having sides, an open bottom and a closed top, openings in the lower portion of the walls of said second box like element, a flange surrounding the upper edge of said second box like element, slots through said flange and notches in the edge of said flange, said second box like element being positioned within the first said box like element so that it houses the portion of the tubular element contained in the first said box-like element and the notches in the flange on said second box like element co-operate with the upper edge of the walls of the first said box like element to form slots, said slots being adjacent the slots in the flange.

2. A gas burner assembly, the combination of a burner supporting frame work, said frame work including seats for gas burner units, legs, and a gas manifold, said seats, legs, manifold and frame work being integral to form a composite structure of said elements, gas jets in said manifold, gas burner units, said gas burner units being loosely set on said seats on said frame work and supported thereby, each of said gas burner units being composed of a box like element open at the top and closed at the bottom, a tubular element open at both ends, said tubular element being vertically positioned within said box like element and being integral with and passing through said bottom thereof, a second box like element, said second box like element being positioned within the first said box like element and over said tubular element, said second box like element having sides, an open bottom and a closed top, openings in the walls of said second box like element and an outwardly extending flange around the top of said second box like element, slots through said flange and notches in the edge of said flange, said notches co-acting with the upper edge of the walls of the first said box like element to form slots, all of said slots functioning as ports for the emission of gaseous fuel.

3. In a gas burner as described in claim 1, and a gas jet below the tubular element.

4. In a gas burner as described in claim 1, a frame element, said frame element including a supporting frame for said burner element, a gas manifold and legs for the support of said frame

and gas manifold, and gas jets, said gas jets being positioned in said gas manifold below and on the center axis of said tubular element in the gas burner substantially as shown and described.

5. In a gas burner as described in claim 1, blank spaces between said slots, said blank spaces functioning to make interruptions in the flame above the burner through which air may pass as a secondary air supply to support combustion as described.

6. In a gas burner, the combination of box like burner elements, a frame for the support of said burner elements, said frame including a gas manifold, gas jets in said manifold, said burner elements being loosely set on said frame and held in position by flanges on said frame, raised portions in the corners of said flanges to support the corners of said burner elements and to provide an air space between the burner element and the frame proper, each of said burner units being composed of a box like element which is open at the top and closed at the bottom, a tubular element, said tubular element being open at each end and vertically and centrally positioned within the box like element and being integral with and extending through the bottom of the box like element, a second inverted box like element, said second box like element being positioned within the first said box like element, said inverted box like element being closed at the top and open at the bottom with portions of the sides cut away as a port, a flange around the top of said inverted box like element, slots through said flange and notches in the edge of said flange, said notches co-acting with the upper edge of the walls of the first said box like element to form slots, blank spaces between said slots, said blank spaces functioning to make a break in the flame above the burner so that air may pass through said break and between the flames over the said slots as a secondary air supply for the combustion taking place above the burner.

7. In a gas burner, a box like element open at the top, a tubular element, open at both ends, centrally positioned on the bottom of said box like element and extending upwardly therefrom with the lower end of said tubular element passing through the bottom of said box like element, an inverted box like element having cut away portions in the sides at the bottom thereof to form gas ports, said inverted box like element fitting within the first said box like element and housing the tubular element, a flange around the upper edge of the inverted box like element, slots through said flange and notches in the edge of said flange to co-operate with the walls of the first said box like element to form slots so that the slots in the flange and the formed slots make a double row of slots around the top of the burner.

8. In a gas burner as described in claim 6, and means for supplying gas to said burner.

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