April 18, 1933. R. B. McLAVY ET AL 1,903,903

GAS BURNER

Filed Jan. 31, 1930

Fig. 1.

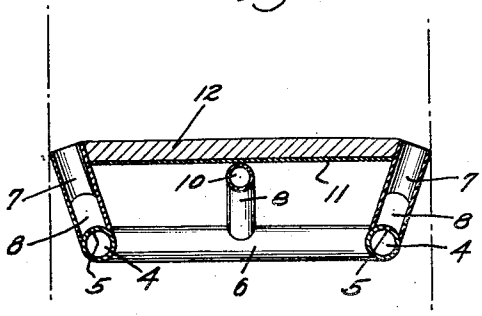


Fig. 3.

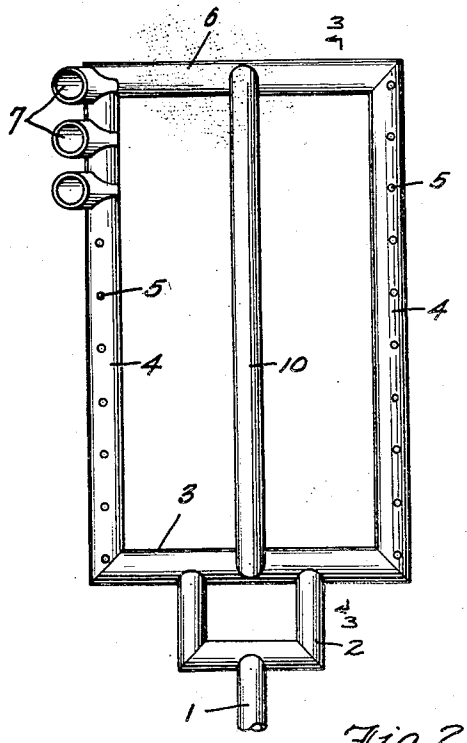
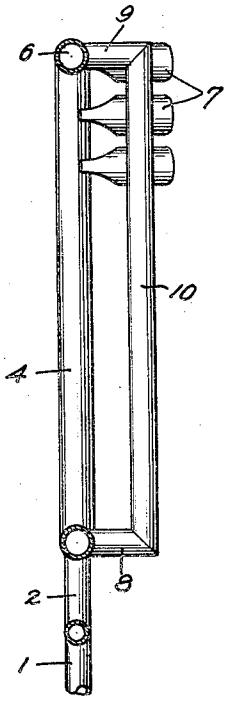


Fig. 2.



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UNITED STATES PATENT OFFICE

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GAS BURNER

Application filed January 31, 1930. Serial No. 424,873.

This invention relates to burners and particularly of the gas type designed for use in boiler furnaces, and comprises an assembly in which an even distribution of the fuel is secured together with a suitable feeding of the air to the burner elements.

More particularly, this invention includes a supply pipe connected to a feed pipe, a plurality of manifolds connected to said feed pipe perforated for the passage of gas to suitable burner cups, a by-pass for feeding the fuel supply from the intake to the rear burners, and a deflector plate for controlling the air to the burners.

Other objects and features will more clearly hereinafter appear by reference to the following specification and claims, together with the accompanying drawing, and in which like characters of reference designate corresponding parts throughout the several views, in which:

Fig. 1 is a transverse section;

Fig. 2 is a top plan view; and

Fig. 3 is a section on line 3—3 of Fig. 2.

In the drawing, an intake pipe is shown and includes pipe 1 which is connected to the U-shaped line 2, the latter communicating at spaced points with the forward feed line 3. The feed line 3 is connected with the manifold 4, the latter being provided with rows of longitudinally arranged spaced perforations 5 and being connected at their opposite ends with the rearward feed line 6. Suitable vertical burner cups 7 each provided with air feed openings 8 are arranged in conjunction with each feed opening 5 in the manifold and are inclined outwardly at a slight angle to cause the proper outward deflection of the flame. A by-pass is provided to distribute fuel from the forward manifold 3 to the rearward manifold 6 at points intermediate these lines, whereby a balanced pressure is obtained at each burner. The by-pass comprises the vertically extending forward pipe section 8 and a similar vertically extending rearward pipe 9, each connected to its respective feed lines 3 and 6. A longitudinally extending pipe section 10 connects the vertical sections 8 and 9, whereby the fuel from the forward feed line 3 is in direct communication with a central point in the rearward feed line 6. It will be noted that the height of the by-pass section 10 is considerably below the tops of the burners 7 and forms a rest for the steel plate 11, which is supported thereon and extends entirely across the burner section and engages the two rows of burner cups at points below their tops. Earth or other suitable material is distributed on the baffle 11 as shown at 12 to prevent the heat from the flames from warping the plate 11.

The center baffle plate 11 is, perhaps, the most important feature in the present structure, in that it forces a mixture of air and gas outwardly through the burner cups, at the same time preventing the whipping around of the flame which would cause the gas to become ignited within the cups at the air ports 8. The ignition within the cups causes their destruction and interferes with the entire operation of the burner assembly. It is also found that in high altitudes where the amount of oxygen is below normal that the baffle plate 11 tends to cause a concentration of air pressure at the air intake of the burner, whereby better results are secured, in that the increased pressure adds the essential amount of oxygen to the mixture.

In the installation of the present invention a boiler will be bricked up at both sides and the throat leaving about twelve inches of air space below the fire box. One tier of bricks should likewise be placed at each corner of the door sheet. With this preliminary assembly the burner is installed and one row of bricks is placed on the mud ring at the front of the burner to stop cold drafts on throat and flue sheets. The dirt covering 12 is then placed on the center baffle plate 11. By removing the desired number of bricks at each corner of the door sheet, the fire from the burner can be brought to the proper level above the plate. The usual regulation of the fire door and bottom drafts is essential to secure the proper flame.

What we claim is:

1. A gas burner including an intake pipe, spaced feed lines, one of which is connected to said intake pipe, manifold lines connect-

ing the ends of said feed lines, a U-shaped by-pass connecting said feed lines, and a horizontal draft plate supported by said by-pass.

2. A gas burner including an intake pipe, a transversely arranged feed pipe connected to said intake pipe, manifolds connected at their forward ends to the ends of said feed pipe and formed with longitudinally extending perforations, a feed pipe connecting the opposite ends of said manifolds, burners positioned for communication with said perforations, a U-shaped by-pass connecting said feed pipes, and a horizontal draft plate positioned between said burners and resting upon said by-pass.

3. A gas burner including an intake pipe, a transversely arranged feed pipe connected to said intake pipe, manifolds connected to the forward ends of said feed pipe and formed with longitudinally extending perforations, a feed pipe connecting the opposite ends of said manifolds, burners positioned for communication with said perforations and extending upwardly and outwardly, a U-shaped by-pass communicating centrally with said feed pipes, and a horizontal draft plate positioned between said burners and above said manifolds and being supported by said by-pass.

4. A gas burner including an intake pipe, spaced feed lines, one of which is connected to said intake pipe, manifold lines connecting the end of the feed lines, a by-pass having a portion elevated above said manifolds connecting said feed lines, and a draft plate partially supported by said by-pass.

In testimony whereof we affix our signatures.

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