J. R. SHANKLIN.

SHEET METAL GAS BURNER.

APPLICATION FILED DEC. 19, 1916.

1,278,037.

Patented Sept. 3, 1918.

2 SHEETS—SHEET 1.

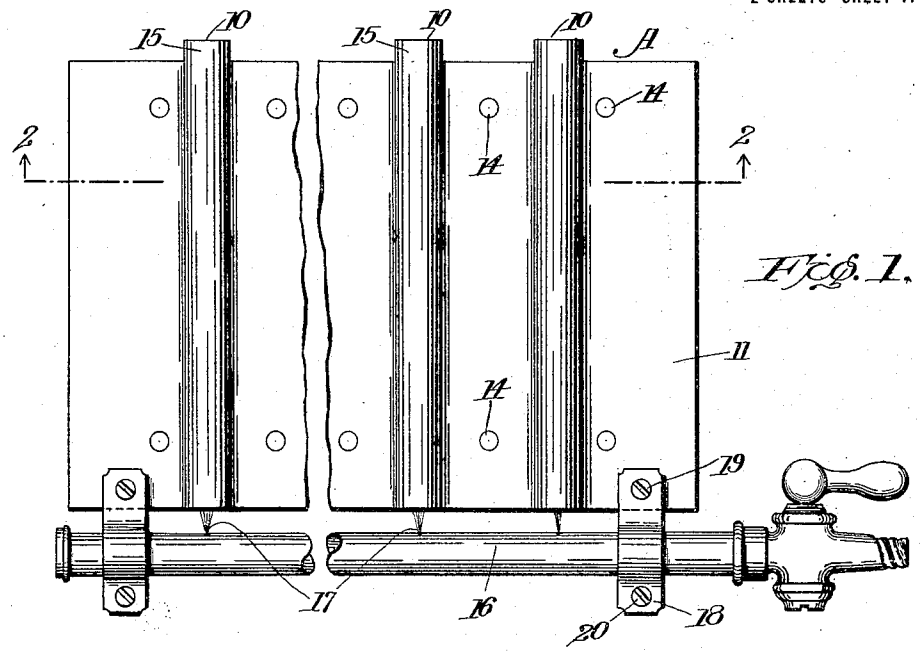


FIG. 1.

FIG. 2.

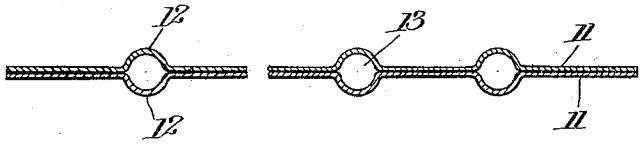


FIG. 4.

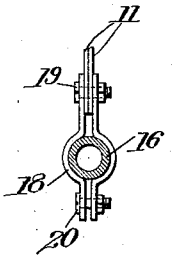
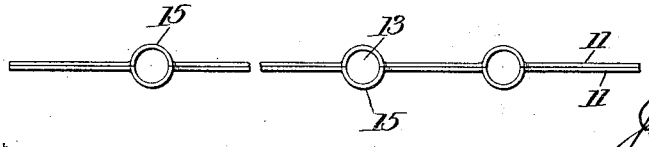


FIG. 3.



Witness

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2 SHEETS—SHEET 2.

FIG. 5.

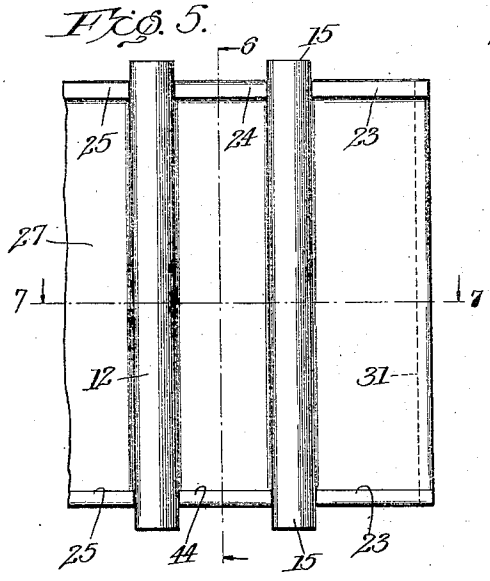


FIG. 9.

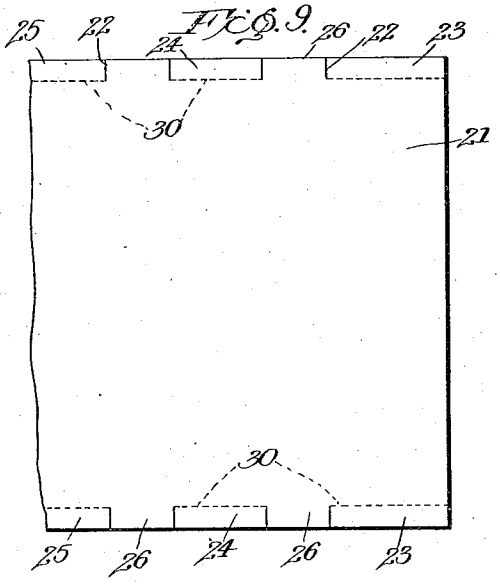


FIG. 10.

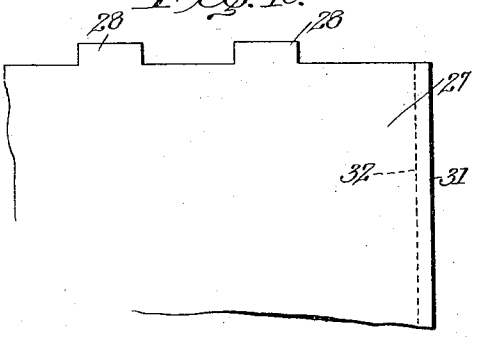


FIG. 6.

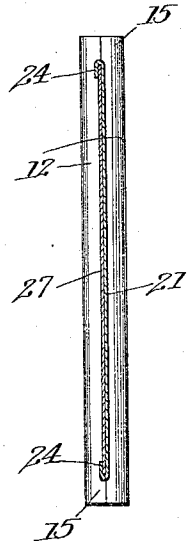
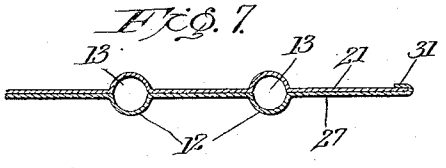


FIG. 7.



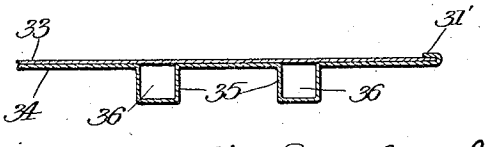


FIG. 8.

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UNITED STATES PATENT OFFICE.

JOHN RICHARD SHANKLIN, OF CHARLESTON, WEST VIRGINIA, ASSIGNOR TO WEST VIRGINIA HEATING AND PLUMBING CO., OF CHARLESTON, WEST VIRGINIA, A CORPORATION OF WEST VIRGINIA.

SHEET-METAL GAS-BURNER.

1,278,037. Specification of Letters Patent. Patented Sept. 3, 1918.

Application filed December 19, 1916. Serial No. 137,851.

To all whom it may concern:

Be it known that I, JOHN RICHARD SHANKLIN, a citizen of the United States, residing at Charleston, Kanawha county, State of West Virginia, have invented certain new and useful Improvements in Sheet-Metal Gas-Burners, of which the following is a specification.

This invention relates to gas burners and especially to burners of the Bunsen type for heating purposes. The object of the invention is to provide a burner of this type which is simple and cheap to manufacture and which can be made in series or groups of any desired number for heating or cooking purposes. The invention will be described in connection with the accompanying drawing, in which,

Figure 1 is a side elevation of a burner constructed according to the invention, part of the burner being broken away;

Fig. 2 is a section of the burner taken on the line 2—2 of Fig. 1;

Fig. 3 is a top plan view of the burner shown in Fig. 1, the gas pipe being omitted;

Fig. 4 is a side view of one of the burner supporting clamps.

Fig. 5 is a view of a part of another burner embodying the invention;

Figs. 6 and 7 are respectively vertical and horizontal sectional views of the same taken on the lines 6—6 and 7—7 of Fig. 5;

Fig. 8 is a horizontal sectional view of part of another burner embodying the invention; and

Figs. 9 and 10 are views of parts of incomplete blanks for making the burners.

Referring to the drawing, A indicates a group of burners consisting of three individual burners 10 formed of two sheets of metal 11, 11, stamped with complementary channels 12 so that when the sheets are united as shown in Figs. 2 and 3 tubular gas passages 13 are provided between the sheets. These passages may be of any desired cross section, a circular section such as shown in the drawing being preferred. The two sheets of metal forming one or more burners are connected together by any suitable means, such as rivets or spot welding. The circular areas 14 on the drawing indicate, for instance, spots where the sheets are welded together electrically. The plates 11 are first cut into suitable rectangular form with rectangular projections which, when the channels 12 are stamped into the plates, form tips 15 for the burners projecting above the upper edges of the plates 11. The gas burns above the outlets of the tubes and by projecting the tubes above the main bodies of the plates the plates are protected from the flame and the air is permitted freer access to the outside of the flame.

The burners are usually supported upon and over a gas pipe 16 having a perforation 17 for discharging gas into each burner. The burners may be supported by any suitable means. As shown, they are carried by pairs of plates 18 which are clamped to the burners by screws or bolts 19 and clamped around the gas pipe by screws or bolts 20.

Figs. 5 to 7 inclusive and Fig. 8 illustrate other forms of multiple gas burners embodying my invention. In Figs. 9 and 10 I have illustrated parts of the blanks which are stamped out in a particular way so that they will be suitable for making the burners shown in Figs. 5 to 7. The blanks are preferably rectangular sheet metal plates and the blank 21 shown in Fig. 9 is slit inwardly along the lines 22 at its upper and lower edges. By slitting the blank in this manner tongues 23, 24, 25, and so forth, are provided at both the upper and lower edges of the blank. Tongues 26 are also provided between the tongues 23, 24; 24, 25 and so forth, which are located in the portion of the plate in which the channel 12 is stamped. The tongues 26 provide tips 15 at the upper and lower ends of the gas passages in the burner. In the blank 27 shown in Fig. 10, the portions corresponding to the tongues 23, 24, 25 and so forth, of the blank 21 are cut out leaving only the tongues 28 which correspond to the tongues 26 of the blank 21. The blank 27 is slightly longer than the blank 21 and after the channels 12 have been stamped in the blanks they are securely united together face to face with their channel portions in register. The registering channel portions therefore form gas passages 13 as indicated in Fig. 7. The tongues 23, 24, 25 and so forth, of the blank 21 are bent along the dotted lines 30 over the upper and lower edges of the blank 27 through the cut-away parts thereof as shown in Figs. 5 and 6, the securing tongues being pressed

down to provide a gas-tight seal between the edges of the plates. The vertical edges 31 of the blank 27 are bent along the dotted lines 32 around the vertical edges of the plate 21 so as to secure the plates together along their vertical edges.

In Fig. 8 I have illustrated another type of gas burner embodying my invention. This form of burner consists of two sheet metal plates 33 and 34 which are united along their upper and lower and vertical edges in the same manner as the plates shown in Figs. 5 to 7, the vertical edge 31′ of the plate 34 being shown as bent around the vertical edge of the plate 33 in Fig. 8. In this form of burner the inner face of only one of the plates is channeled, and I have shown the plate 34 provided with rectangular channels 35 which correspond in length to the channels of the burner shown in Figs. 5 to 7. The plate 33 is placed face to face with the inner side of the plate 34 and the plates are secured together at the edges as already described. Parts of the plate 33 will therefore cover the open sides of the channels 35 forming the gas passages 36.

It will be noted that the construction described is very simple and very cheap and that it permits of any desired number of burners being manufactured at one time and as a unitary structure. A series of burners may be arranged in a common plane, as shown in the drawing, or in circular or other form, as may be desired.

My burner affords a perfect combustion of the gas and is adapted for use in gas heating stoves, ranges and fire-place heaters burning either natural or artificial gas. The burner may also be used in furnaces and boilers. While several forms of the invention have been shown and described in detail I do not wish to be limited to these forms as it is obvious that various changes may be made in the construction without departing from the spirit of the invention.

Having thus described the invention what is claimed and desired to be secured by Letters Patent is:

1. A gas burner comprising two pieces of sheet metal united face to face and shaped to provide a plurality of separated gas passages that extend throughout the height of the sheets and terminate above the upper edges of the main bodies thereof.

2. A gas burner comprising two pieces of sheet metal arranged face to face and shaped to provide a plurality of gas passages that project below and above the bottom and top edges of the main bodies of the plates, said plates being secured together at points between the gas passages formed thereby.

3. A Bunsen burner consisting of two pieces of sheet metal having complementary channels stamped therein and united to form a tubular gas passage between said pieces of metal, the metal forming the walls of the channels being extended above the upper edges of the other portions of the sheets to form the burner tip.

In testimony whereof I affix my signature.

JOHN RICHARD SHANKLIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."