

May 24, 1949.

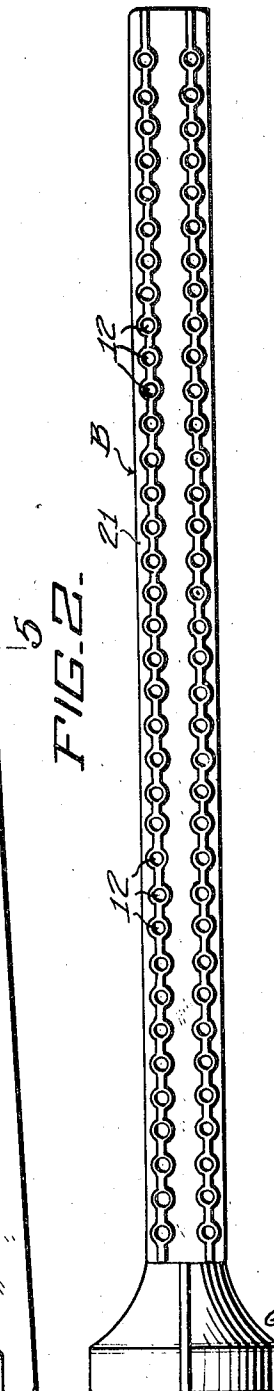
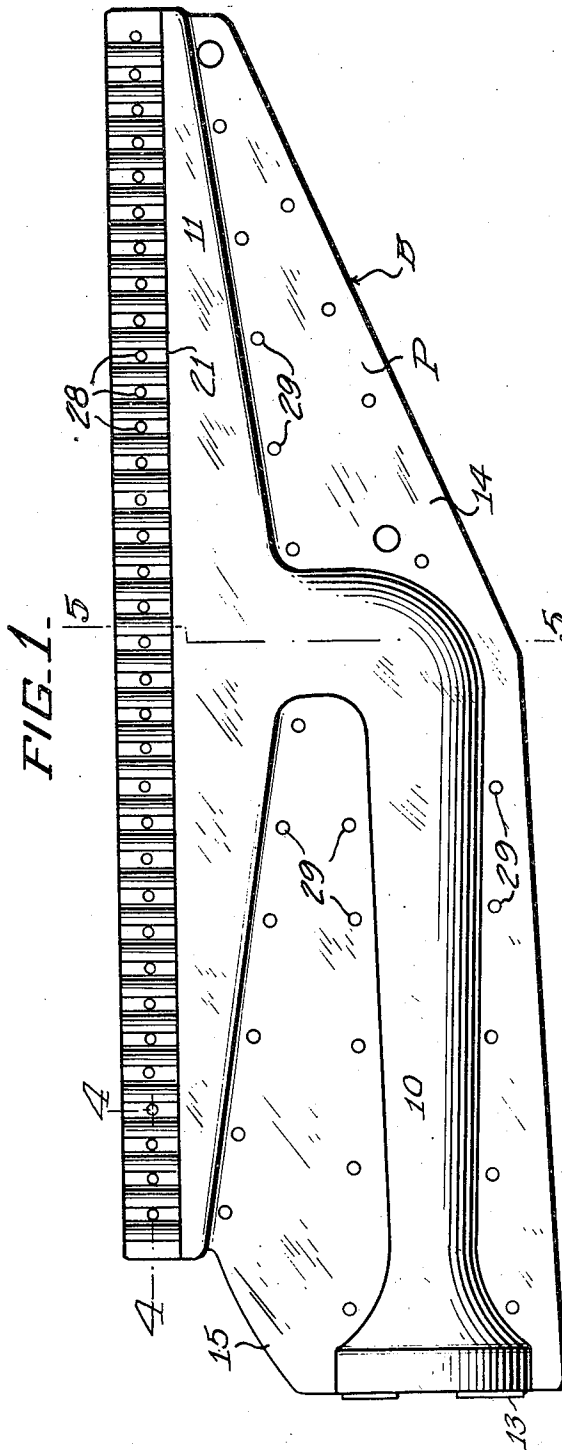
G. W. ZIMBELMAN ET AL

2,470,880

SHEET METAL GAS BURNER

Filed Sept. 19, 1944

2 Sheets-Sheet 1



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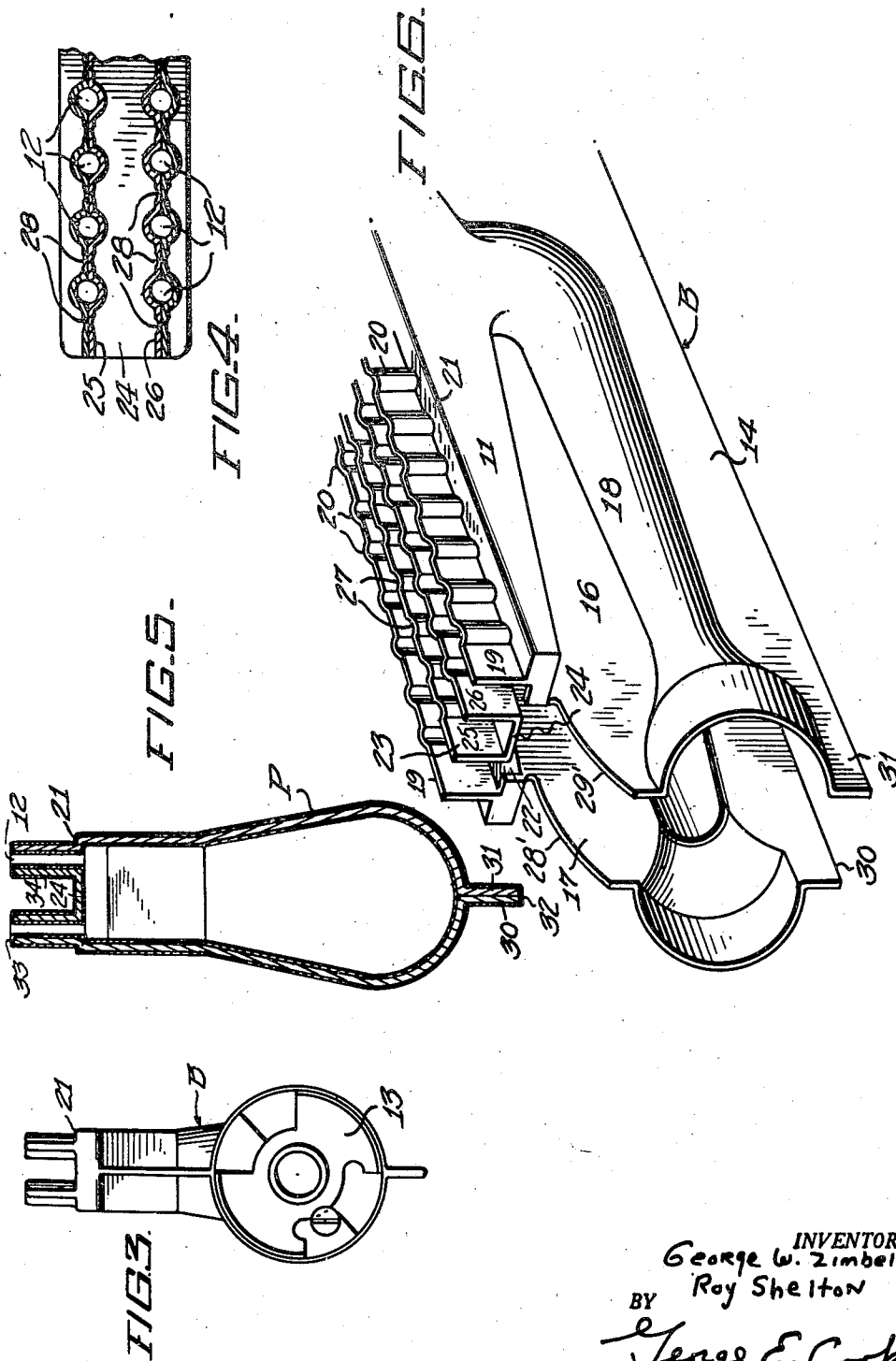
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UNITED STATES PATENT OFFICE

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SHEET-METAL GAS BURNER

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Application September 19, 1944, Serial No. 554,800

2 Claims. (Cl. 158—99)

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The instant invention relates to burners and more particularly to a gas burner and the method of making the same.

One of the primary objects of the invention is the fabrication of a sheet metal burner, preferably of all steel construction, having a porcelain or glass coating both on the inside and outside of the burner and its ports.

Still another object is the method of constructing a burner of the type specified which is composed of two similar sheet metal stampings and an intermediate channel member to produce a compact burner having in addition a porcelain or glass interior and exterior surface coating to prolong the life of the burner and prevent corrosion or rust of any part thereof.

Yet another purpose is the manufacture of a burner of the character aforementioned which may be readily stamped and assembled; which is well adapted to resist corrosion and wear and which constitutes a very satisfactory article of commerce.

The above and other aims and objects will be apparent from the detailed description hereinafter appearing when taken in conjunction with the appended drawings forming a part hereof to which attention is now directed and in which

Fig. 1 is a side elevational view of the completed burner having a porcelain or similar interior and exterior coating;

Fig. 2 is a plan view of the burner of Fig. 1;

Fig. 3 is an end view looking to the right in Fig. 1;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1, but without the porcelain coatings;

Fig. 5 is a sectional view taken on line 5—5 of Fig. 1; and

Fig. 6 is a partial perspective view showing the manner in which the two similar sections and the channel member are positioned for assembly.

Referring first to Figs. 1 and 2 of the drawings, it will be noted that the burner generally designated by the reference character B is of elongated form having a gas entry tube 10 leading to a T-shaped upper portion 11 provided with a plurality of ports 12, the entry tube 10 having the usual disk valve 13, see Fig. 3. The burner B is further characterized by fin-like walls 14, 15, the entire burner being covered with an interior and exterior porcelain coating or the like P.

By reference to Fig. 6 of the drawings it will be seen that the burner B is constructed of a pair of similar stampings 16 and 17 formed in interchangeable blanks, preferably formed from sheet steel and as will be seen each has the general out-

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line of the finished burner and constitutes a side wall thereof. Each stamping 16 or 17 further has a hollow bulged portion 18 constituting one half of the gas tube 10 as well as one half of the T-shaped upper portion 11. In addition each stamping includes a short vertical wall 19 having a plurality of structurally integral longitudinally-spaced semi-cylindrical bulges 20. It will be noted that the wall 19 extends inwardly from a horizontal edge 21 of the stamping 16 or 17 and that each of the latter includes an inwardly extending ledge portion 22. An integral channel member 23 having a general U-shaped configuration comprises a bottom wall 24 and side walls 25 and 26. Each of the side walls 25 and 26 has a plurality of longitudinally-spaced semi-cylindrical bulges 27. The channel member 23 is secured to the stampings 16 and 17 in a manner now to be described in detail.

The three members are positioned in the manner shown in Fig. 6 and when brought into abutting relationship will produce a burner which is partially hollow and of the general configuration shown in Figs. 1 and 2. For uniting the members a multiple spot welder is employed. The welds are preferably located as indicated at 28 and 29 in Figs. 1 and 4 of the drawings. This operation produces the cylindrical gas ports 12 in that bulges 20 of the stampings and similar bulges 27 of the channel member 23 are brought and secured in abutting relationship, and the fin-like walls 14 and 15 are formed by the weld union of the contacting edges 28', 29' and 30, 31 of the similar stampings 16 and 17.

The next step in the assembly and completion of the burner comprises immersing the welded product resulting from the operations just described into a liquid porcelain enamel. In view of the fact that this operation serves to close the cylindrical ports 12, it becomes necessary to open same and this is done with a reamer to assure a fixed or uniform drilled diameter size for all ports. The entire burner B is then placed in an enamel oven and baked to 1650° F. This operation not only secures or bakes the porcelain to the steel surface of the stampings and channel members but also anneals the steel of the burner to thus inhibit future warping thereof. The coating serves to seal all pin holes formed in the spot welding operation and helps to bind the three sections or stampings of the burner together. By reference to Fig. 5 of the drawings it will be seen that the porcelain coating P extends both interiorly and exteriorly of the burner B and additionally covers all abutting edges as at 32, 33,

34. The final step comprises securing the valve member 13 at the entrance to the tube 10.

From the above description it will be apparent that there has been constructed a burner member which is well adapted for its intended function; the porcelain interior and exterior coatings serving to protect the sheet metal stampings and to seal all pin holes formed by the welding operation as well as filling all grooves formed by the abutting edges of the stampings.

While the invention has been described in detail it will be appreciated that various changes may be made in the specific operations as will be apparent to those skilled in the art. It is contemplated to cover all such and to be limited in this respect only as may be necessary by the scope of the claims hereto appended.

What we claim and desire to secure by Letters Patent is:

1. A gas burner comprising a pair of separate similar sheet metal stampings including elongated vertically disposed wall portions secured in face to face contact, the wall portions adjacent their lower edges having cooperating substantially semi-cylindrical portions forming a gas entry tube and the wall portions at their upper edges having elongated horizontally disposed hollow portions in communication with said gas entry tube, said stampings further including upper laterally spaced walls, coextensive with said hollow portions, said upper walls each provided with outwardly bulged vertically disposed spaced semi-cylindrical portions, and a channel member supported within the hollow portions and including vertically disposed walls having inwardly bulged

vertically disposed spaced semi-cylindrical portions cooperating with the first semi-cylindrical portions forming two longitudinal rows of spaced gas ports.

2. A gas burner according to claim 1, wherein said upper laterally spaced walls are disposed intermediate the inner and outer edges of said hollow portions and wherein said vertical walls of the channel member abut said upper vertical walls and are secured thereto at spaced points intermediate the port-forming bulged portions.

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