

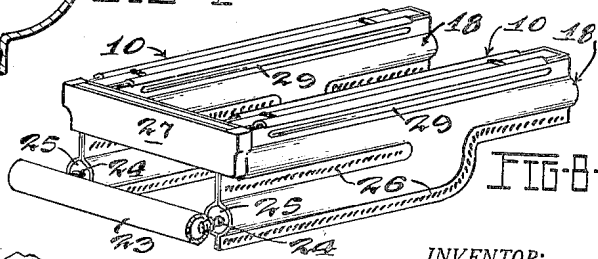
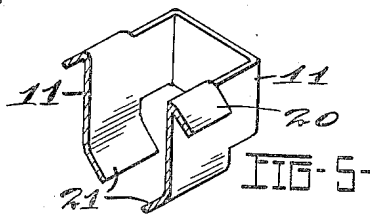
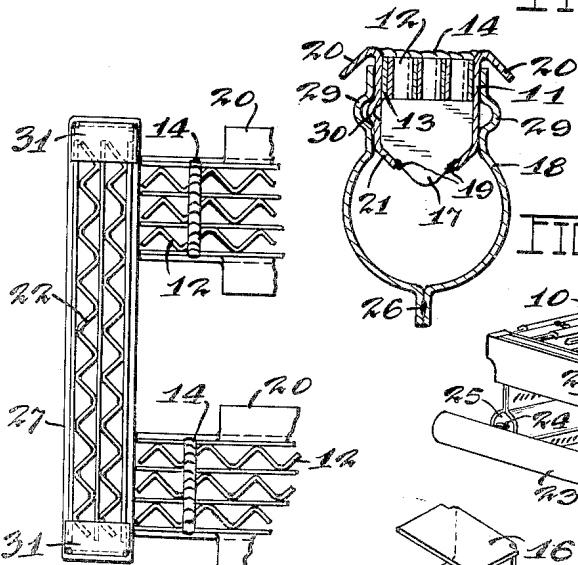
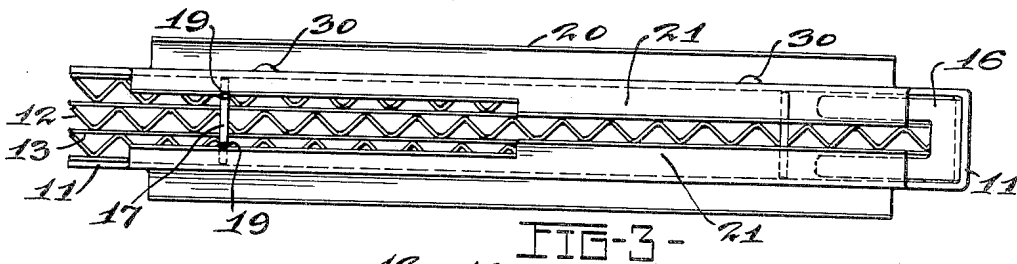
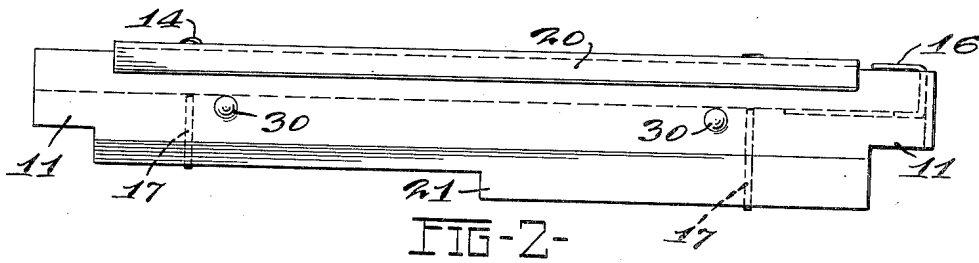
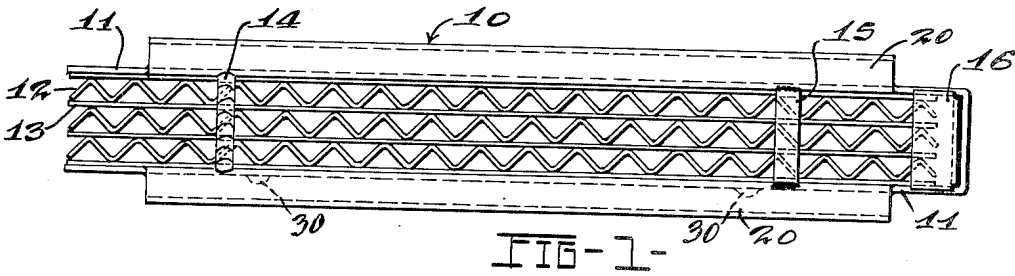
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2,652,107

CROSS LIGHTER AND REMOVABLE PORT-FORMING GRID

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FIG-7-

FIG-8-

UNITED STATES PATENT OFFICE

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CROSS LIGHTER AND REMOVABLE PORT-FORMING GRID

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6 Claims. (Cl. 153—115)

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This invention relates to gas burners of the type comprising a longitudinal series of contiguous gas discharge ports of relatively small size and the object of the invention is to provide an assembly of port-forming ribbons which shall be particularly well adapted for defining said ports and more particularly where a plurality of burners are interconnected by a cross lighter.

For a consideration of what I believe to be novel and my invention, attention is directed to the following specification and the claims appended thereto.

In the drawings:

Figure 1 is a plan view of an assembly embodying the present invention and comprising a bundle of port-forming metal ribbons and holder therefor.

Figure 2 is a side view of the assembly shown in Fig. 1.

Figure 3 is a bottom view of the assembly shown in Fig. 1.

Figure 4 is a transverse sectional view of the assembly as installed in a sheet metal burner casing.

Figure 5 is a fragmentary cross-sectional and isometric view of the holder for the bundle of metal ribbons.

Figure 6 is a detail view of a retainer clip.

Figure 7 is a fragmentary plan view of a portion of a multiple head burner shown on a reduced scale in Fig. 8.

Figure 8 is a perspective view of a multiple head burner embodying the present invention.

The improved assembly 10 (Figs. 1-3) comprises a U-shape frame or holder 11 adapted to receive between the legs thereof a bundle of port-forming metal ribbons comprising corrugated and straight metal ribbons or strips 12 and 13, respectively. The size and shape of the ports so formed may be varied by varying the configuration of the strips as varying fuels or conditions may require. The strips 12 and 13 are attached to the holder 11 near one end thereof in any preferred way as by a narrow weld bead 14. At the other end the strips are slidably supported in the holder 11 by a metal clip 16 (Fig. 6) which forms a pocket into which the strips may expand when heated. The clip 16 fits into the closed end of the holder 11 and has top shoulder portions which rest on the top side of said holder. A strap 15 extend across the top of the strips and is welded at its ends to the top edges of the holder 11. The strips are free to move in the holder with respect to the strap. Supports in the form of upright plates 17 are positioned be-

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low the strips and are welded at 19 to the holder 11 to give rigidity to the latter.

The burner body or casing 18 is formed from a pair of stamped sheet metal parts seam welded at seams 26. Ribs 29 are formed in the side walls of the burner casing 18 to stiffen the sidewalls and to provide an indentation to receive lugs 30 on the bundle holder 11 for positioning and retaining the holder in the burner 18. When the holder is disposed in the burner, lower flanges 21 on the holder converge to form between them a plenum chamber with an orifice inlet to distribute the gas evenly into the ribbons above, and the width of the slot-like orifice so formed may vary from end to end of the holder as may be required by pressure differences in the burner such as caused by the horizontal discharge of fuel gas from the fuel gas manifold 23 through spuds 24 into the receiving end 25 of the burner. In this burner the momentum of the fuel gas builds up a static pressure at the ribbon gas ports at the opposite end of the burner. It is this pressure which is compensated for by said orifice.

When two or more ribbon type burners are used as a heating unit it is desirable to ignite all burners from a single pilot (not shown) and to apply safety controls to that pilot. For this purpose a cross-lighter 27 extends between the burners 18 with fuel discharge ports formed by ribbons 22 therein. Metal clips 31 similar to the clip 16 are placed at either end of the cross-lighter to contain the strips which are otherwise free to move or expand. In an assembly of burners and cross-lighter any burner may be piloted in a conventional way and when one burner is ignited the cross-lighter carries the ignition flame to the other adjacent burners. To facilitate the ignition jump from burners to cross-lighter the ribbons of the burners 18 are fastened as by the aforesaid weld 14 (or by a rivet or the like) in fixed relation to the cross-lighter 27 so that expansion of the ribbon bundle will take place in a direction away from the cross-lighter, and, therefore, to permit a minimum clearance to be safely maintained adjacent the cross-lighter, it being apparent that ignition would not jump over at the cross-lighter-end of the burner 18 if a large cover plate were interposed to cover an expansion gap.

Having thus disclosed the invention, I claim:

1. In a gas burner, in combination, a plurality burner heads in laterally spaced relation and each having means defining an elongate series of ports from which the gas issues for burning, a cross lighter extending between said heads to provide

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a continuous line of ignition between said port series, said port-defining means comprising an elongate bundle of port-forming ribbons arranged with one end of said bundle next adjacent the adjacent end of said cross lighter, means for preventing relative movement between the adjacent ends of said bundle and said cross lighter to insure that longitudinal thermal expansion of said bundle shall take place in a direction away from said cross lighter, and means for slidably supporting the other end of said bundle.

2. In a gas burner, in combination, an elongate body having a chamber to receive a supply of gas and a slot extending longitudinally of the body and communicating with said chamber, an elongate bundle of port-forming ribbons and an elongate holder therefor adapted to be removably positioned in said slot, said holder comprising side walls between which said bundle extends, means for preventing relative movement between one end of said bundle and one end of said holder to insure that longitudinal thermal expansion of said bundle shall take place in a direction towards the other end of said holder, and means at said other end of said holder for slidably supporting the adjacent end of said bundle.

3. In a gas burner, in combination, an elongate body having a chamber to receive a supply of gas and a slot extending longitudinally of said body and communicating with said chamber, an elongate bundle of port-forming ribbons and an elongate holder therefor adapted to be removably positioned in said slot, said holder comprising side walls between which said bundle extends, means for preventing relative movement between one end of said bundle and one end of said holder to insure that longitudinal thermal expansion of said bundle shall take place in a direction towards the other end of said holder, and means at said other end of said holder forming a pocket for slidably receiving the free end of said bundle.

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4. In a gas burner according to claim 3, the combination wherein the sidewalls of said holder extend into said chamber beyond said ribbons and converge to form between them and the ribbons a plenum chamber with an orifice inlet formed between the extended sidewalls to distribute the gas from the chamber evenly into the adjacent bundle.

5. A removable ribbon burner bundle according to claim 4 wherein the orifice formed by the converging side walls of the holder is of a varied width from one end of the bundle to the other.

6. A removable ribbon burner bundle for a burner having a longitudinally extending gas discharge slot to receive port-forming ribbons, said bundle comprising a bundle of substantially parallel, elongate port-forming ribbons, an elongate holder for the ribbons adapted to be removably positioned in the gas discharge slot of a burner and comprising substantially parallel side walls between which the ribbons extend and parallel to which the gas flows through the ports formed by said ribbons, each of said side walls extending from the ribbons on the gas receiving side thereof and converging to form between them a plenum chamber with an orifice inlet to distribute the gas from a burner evenly into said bundle of ribbons.

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