July 28, 1964 G. C. DIERKS 3,142,331

MODULAR RIBBON-TYPE GAS BURNER

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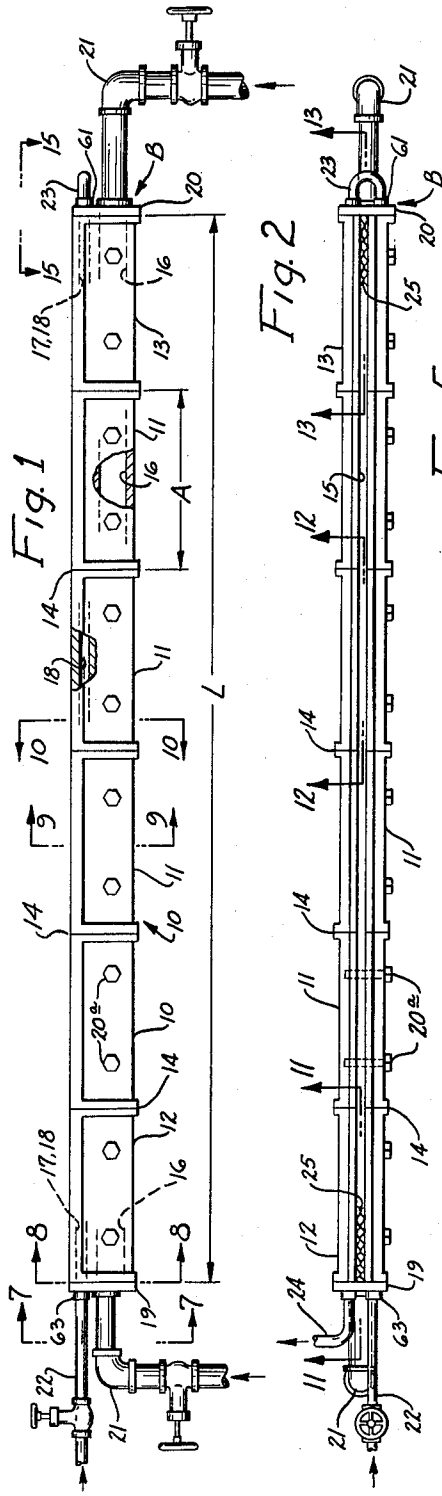


Fig. 1

Fig. 2

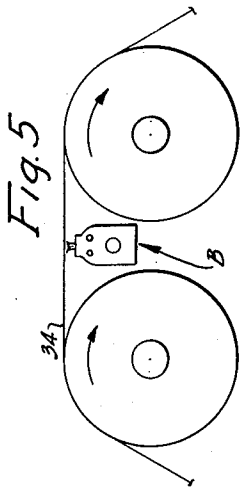


Fig. 5

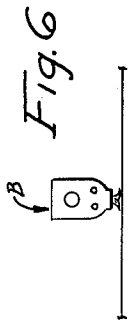


Fig. 6

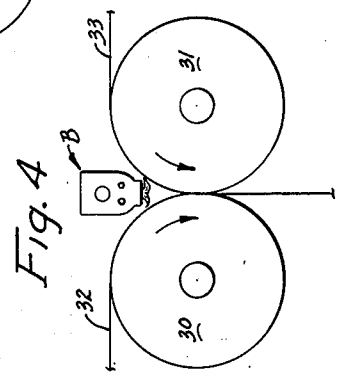


Fig. 4

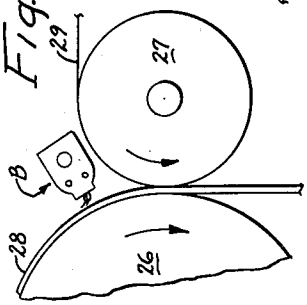


Fig. 3

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Fig. 7

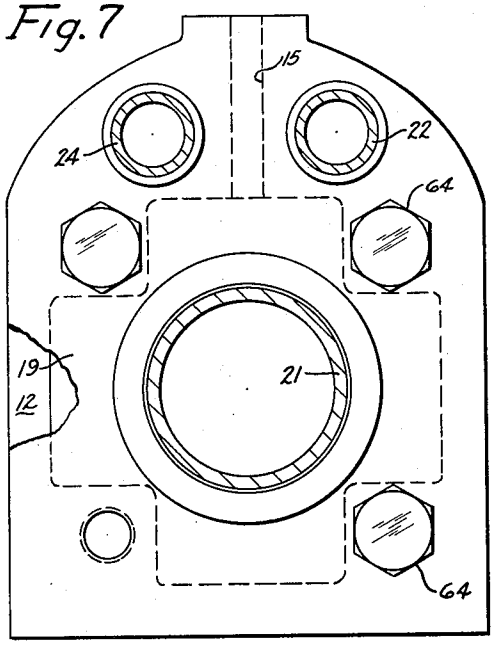


Fig. 8

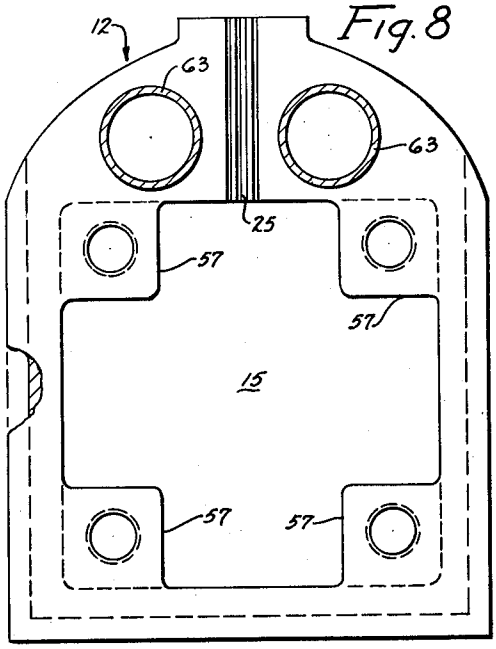


Fig. 9

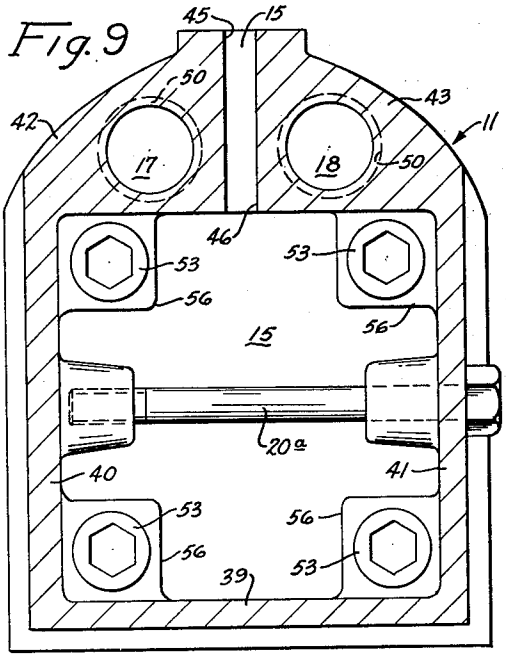
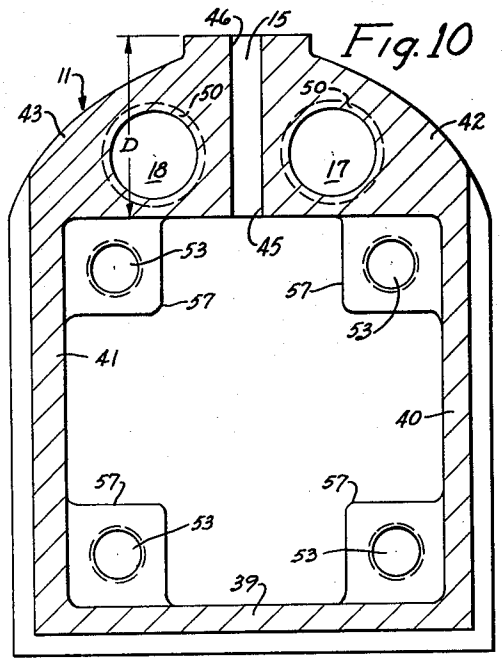


Fig. 10



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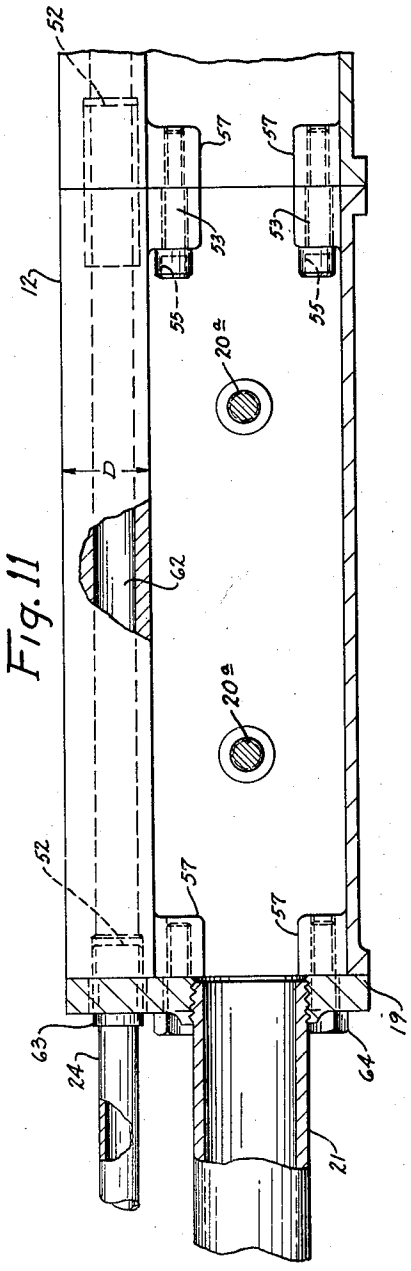


Fig. 11

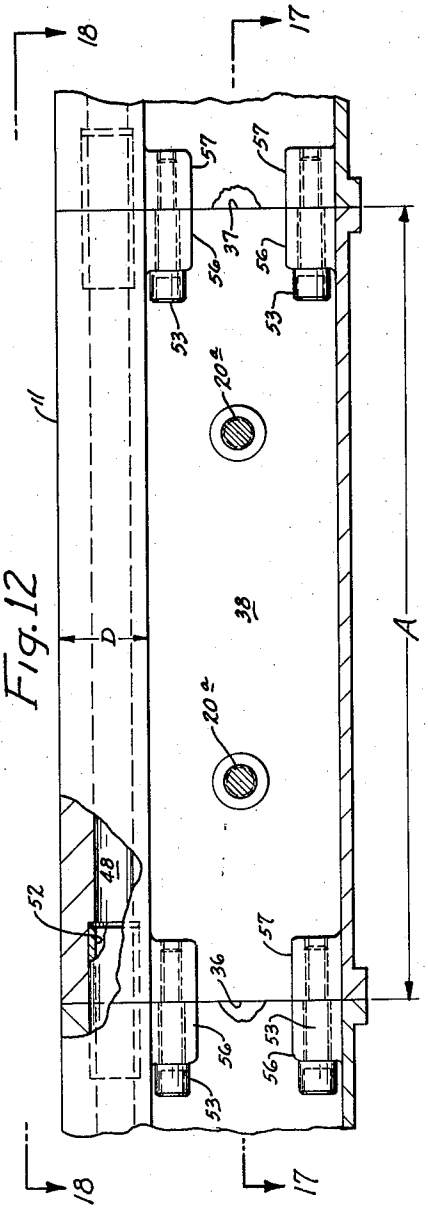


Fig. 12

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MODULAR RIBBON-TYPE GAS BURNER

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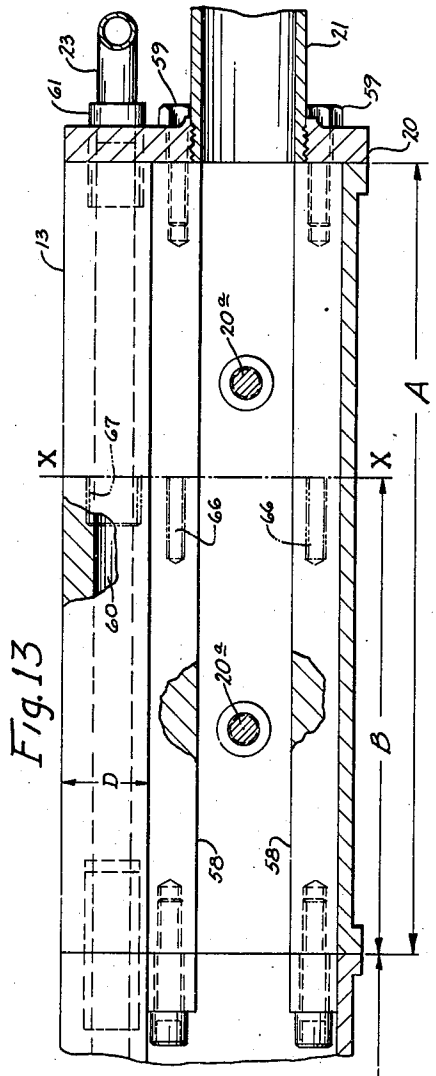


Fig. 13

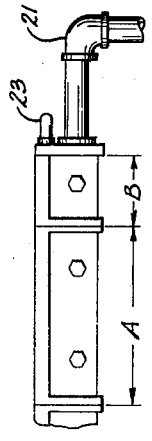


Fig. 14

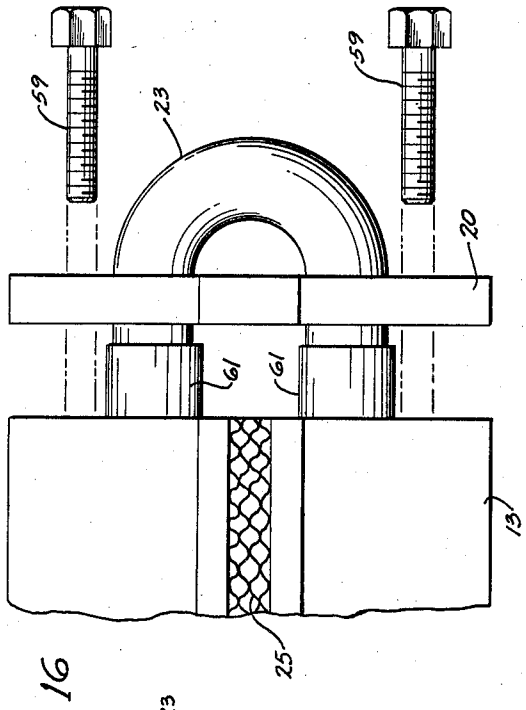


Fig. 16

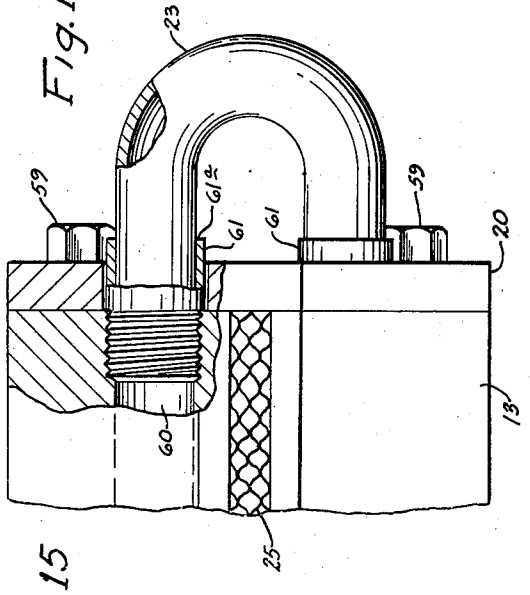


Fig. 15

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MODULAR RIBBON-TYPE GAS BURNER

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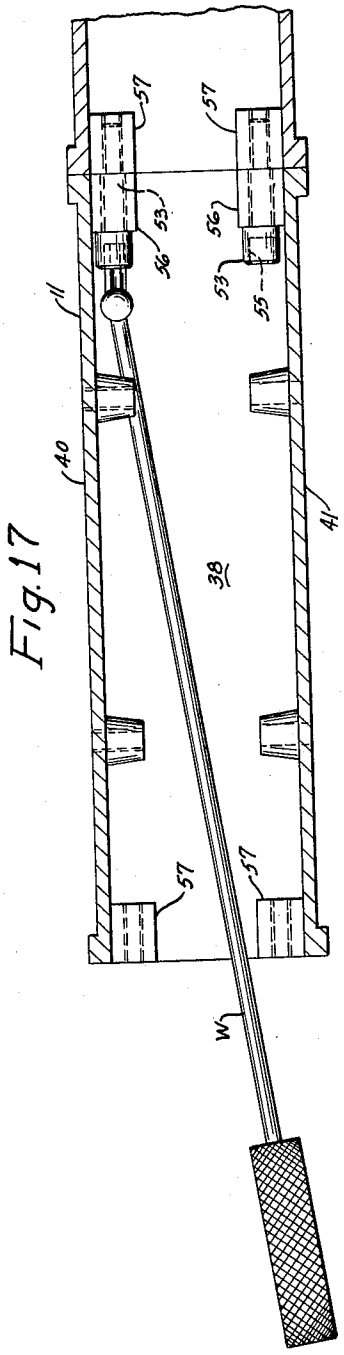


Fig. 17

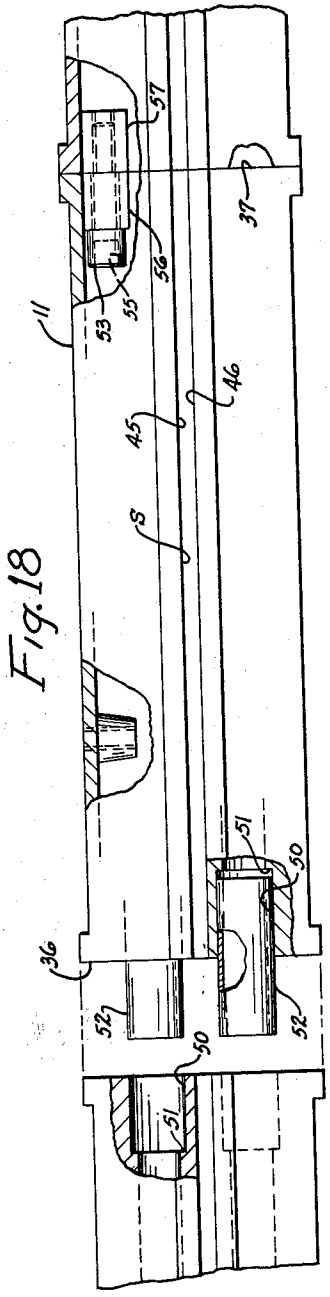


Fig. 18

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United States Patent Office 3,142,331 Patented July 28, 1964

3,142,331

MODULAR RIBBON-TYPE GAS BURNER

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Filed May 8, 1961, Ser. No. 108,363
12 Claims. (Cl. 158—99)

This invention relates to longitudinal ribbon type gas burners producing a flame along the longitudinal burner mouth or slot extending from end to end of the burner housing.

Inserts provided in this slot may be in the form of the familiar corrugated strip material for subdividing the slot area into a multitude of minute gas flow passages or orifices for producing a desired kind of ribbon flame.

The invention more particularly relates to gas burners required to have a cast iron housing wherein the burner slot can be machined or milled to accurate dimensions and otherwise suitably shaped for the reception and retention therein of the insert strips. The burner housing as a whole has heretofore consisted of a single or monolithic casting wherein the burner slot could be machined in a single operation, the purpose being to fit the insert strip or strips closely between the sides of the slot in order that uniform gas distribution and a flame of even height might be attained through the multitude of orifices formed by the strip material in the slot. Cross-rivets or similar means penetrating the strips were usually employed for securing the strips in their position in the slot, the presence of these transverse rivets being the cause of small dips created in the height of the burner flame, not desirable for some purposes of this invention.

Nevertheless, such cast iron burners have shortcomings for the reason that casting problems and other production difficulties, as well as any tendency of the burner housing to warp due to the 1-sided heat effects of the flame, are augmented and compounded with increasing burner length. However, such drawbacks and limitations are found to be objectionable for instance in those industrial operations where the ribbon flame must extend across the path of a relatively wide travelling web for uniformly heat treating the same, as in cloth singing, web bonding, ink drying, and similar heat treatment operations. In these circumstances, the uniform continuity of the flame along the burner slot, its uniform height throughout as well as the accurate uniform distance of the burner slot or mouth from the travelling web are critical, but are difficult to achieve in view of the potential degree of warping that may occur particularly as measured against a desired width of the web requiring a corresponding burner length.

Another problem is due to the fact that various cast iron burner lengths must be stocked, or else a longer burner must be furnished where only a shorter one is needed, requiring the blanking off of the excessive portion of the burner slot.

The invention therefore has among its objects the provision of a ribbon gas burner free of the aforementioned drawbacks and limitations, so it can be furnished with no length restrictions, yet will not warp while producing a flame having the particular qualifications and effects set forth above in connection with the web heat treating operation.

Another object is to provide a burner-housing comprised of sections as to be of variable length and having an accurately machined burner slot, which housing may be manufactured economically from an utmost minimum of casting patterns, requiring the machining and stocking of only short finished lengths of easy-to-handle housing sections.

Still another object is to provide a burner wherein the insert strips are securely held without the use of rivets

or similar fastening means penetrating them, yet readily removable from the slot.

In view of the foregoing objects, the invention provides a cast iron component section or member representing a short length of open-ended burner housing having a burner slot extending from one end face of the section to the other. A plurality of such members preferably of equal length may be secured endwise to one another constituting a composite or modular burner housing of variable length.

Locating means are provided between adjoining end faces of these housing members for ensuring that the individually machined slots of the respective sections are accurately aligned with one another to constitute an accurate composite slot from end to end of the composite housing. Transverse clamping bolts extending through the respective housing sections may be tightened to force the sides of the burner housing towards each other for thereby securely holding the insert strips frictionally between the sides of the composite slot, whereby the aforementioned securing rivets for the insert strips are eliminated, and the mounting, inspection and replacement of these inserts is greatly facilitated. End closure members may then be bolted to the respective open ends of the composite burner housing.

The invention further provides coolant conduit means formed in each of the castings along each side of the burner slot, effective to prevent any warping of the composite housing by the flame. This cooling arrangement features sleeve elements press-fitted into mutually adjoining end portions of the burner sections. These sleeves constitute part of the coolant conduit means and function as sealing elements for the coolant at the junctures of the housing members, while also serving as locating means insuring accurate alignment of the housing members with respect to the composite burner slot.

According to a special feature of the invention one housing member is so designed that any desired fractional length thereof is readily obtainable from a single basic casting pattern.

Another feature lies in the provision of bolt connections between the housing sections, specially arranged so that they are outwardly invisible being compactly disposed interiorly of the housing avoiding bulky external flange connections, and rendering the burner readily applicable to a variety of special operating situations or web heat treatment installations.

It is among advantages flowing from this invention that the requirements for any suitable length of burner can be met ranging for example from the length of a single modular housing member to the length of any suitable multiple thereof, as well as to the length of a multiple plus a fraction.

Other features and advantages will hereinafter appear.

As this invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, the present embodiment is therefore illustrative and not restrictive, since the scope of the invention is defined by the appended claims rather than by the description preceding them, and all changes that fall within the metes and bounds of the claims.

In the drawings:

FIG. 1 is a side view illustrating the composite or modular character and the variable length of the burner, with the internal bolt connectors between housing members invisible.

FIG. 2 is a top view of the burner shown in FIG. 1, showing the burner slot with insert strips held therein;

FIG. 3 illustrates one mode of application of the burner in a web bonding operation;

FIG. 4 illustrates a different arrangement of the burner in a web bonding operation.

FIGS. 5 and 6 illustrates singing or ink drying operations or the like;

FIG. 7 is an end view of the burner taken on line 7—7 of FIG. 1, showing the relative locations of the gas inlet pipe connection and of the pipe connections for the coolant;

FIG. 8 is an end-view of the burner housing taken on line 8—8 of FIG. 1 with the end plate removed showing the location of the gas and coolant conduits within the burner;

FIG. 9 is a cross-sectional view of the burner taken on line 9—9 of FIG. 1, showing one end of the internal bolt connections;

FIG. 10 is a cross-section of the burner taken on line 10—10 of FIG. 1, showing the other end of the internal bolt connections;

FIG. 11 is a partial longitudinal sectional view taken on line 11—11 of FIG. 2 through the left hand end portion of the burner, illustrating the internal connections and end closure means;

FIG. 12 is a partial longitudinal sectional view taken on line 12—12 of FIG. 2 through an intermediate portion of the burner, illustrating the connector sleeves;

FIG. 13 is a partial longitudinal sectional view taken on line 12—12 of FIG. 2 through the right hand end portion of the burner, showing a specially designed modular housing member capable of being provided in fractional lengths;

FIG. 14 is a side view of the right hand end portion of the burner including a terminal housing member of a fractional modular length;

FIG. 15 is top view of the right hand end portion of the burner with the respective enclosure member in place;

FIG. 16 is similar to FIG. 15, but showing the end closure plate loosened to facilitate removal of the insert strips;

FIG. 17 is a sectional plan-view taken on line 16—16 of FIG. 12, illustrating the manipulation of the internal bolt connections in one stage of assembly of the component housing members of the burner;

FIG. 18 is a top view taken on line 18—18 of FIG. 12, illustrating another stage of assembly of the component housing members.

As exemplified in the embodiment of FIGURES 1 and 2 the longitudinal ribbon type gas burner comprises a composite burner housing 10 for example of a desired length "L." This total length is composed of a series of relatively short housing sections or component members in the form of castings that are individually machined. Preferably these castings are provided as modular units in that they are of equal length "A" and substantially alike, and prepared to be endwise interconnected in a special manner to be described below. These members preferably are short enough to enable them to be readily cast, and the castings to be readily handled, set up, and accurately machined preparatory to having them assembled into the composite burner unit.

In this example, the composite burner housing comprises a number of intermediate housing members 11 and terminal housing members 12 and 13. While all these members appear outwardly alike, the terminal members differ internally from each other as well as from the intermediate members which latter among themselves are externally as well as internally alike, as will be furthermore explained below.

Further according to FIGURES 1 and 2, when assembled and interconnected at their respective junctures 14 these housing members constitute a burner slot 15 of composite length extending from one open end of the housing to the other as well as a longitudinal gas conduit 16 communicating with the slot along the length thereof. Moreover when the housing is assembled the component parts together constitute a pair of built-in ducts or coolant conduits 17 and 18 along each side of and directly adjacent to the composite slot.

Closure members or end flanges 19 and 20 for the respective ends of the burner housing may be identical, each for example having a valved gas supply connection 21 in order that, particularly for long burners, the gas may be introduced from both ends to provide rapid and uniform gas flow distribution along the length of the burner slot.

The supply of a coolant fluid or cooling water into the burner housing is indicated by the valved supply pipe 22 which passing through the end flange 19, connects with the first conduit 16 located at one side of the slot. At the opposite end of the burner a U-shaped transfer pipe 23 passing through end flange 20 leads from the exit end of the first coolant conduit 17 to the adjacent inlet end of the other coolant conduit 18 located at the opposite side of the slot and having a discharge pipe connection 24 extending through the end flange 19 delivering spent cooling water from the burner.

Corrugated insert strips 25 are indicated in the burner slot, being confined sideways by the sides of the slot and endwise by the closure flanges 19 and 20. Each of the component housing members is shown to be provided with a pair of transverse tie bolts or tightening screws 20*a* extending across the gas conduit, whereby the side walls of the housing may be interconnected, so that the insert strips will be tightly confined between the sides of the slot.

The composite or modular construction of this burner eliminates casting and machining problems in the manufacture of the burner as well as problems in its operation, while the burner itself may be provided in a great variety of lengths ranging, say, from a one foot length of a single housing member to any suitable multiple thereof for instance 6 to 10 feet long and thus greatly exceeding prior length limitations and such other drawbacks as were attached to prior single piece construction.

Compact in the absence of external flange and bolt connections intermediate its length this composite burner "B" while free from length limitations and from warping, is readily, effectively and accurately applicable, for example, in a web bonding or laminating operation such as illustrated in FIG. 3, which may employ water-cooled laminating rollers 26 and 27 of unequal diameters. In this instance the burner flame must be located under a suitable angle in the nip of the cooperating rollers, with the position of the burner carefully adjusted and the flame critically controlled and spaced from the web material in a location close to the laminating point. Examples of such an operation requiring such critical control are the bonding of poly-urethane foam sheeting 28 to a plastic cloth 29 or to fabrics to provide non-skid table cloth or other coverings, or in the making of heat insulated cloth or clothing or the like.

Another example of web bonding is illustrated in FIG. 4 where the laminating rollers 30 and 31 are of equal diameter with the burner "B" in a vertical inverted position located in the nip of the co-operating rollers, for bonding a pair of webs 32 and 33.

In FIG. 5 a web 34 travels horizontally across the burner "B" with the flame directed upwardly as in a cloth singing or similar operation, while FIG. 6 shows the burner "B" with the flame directed downwardly towards the travelling horizontal web 34 which may exemplify an ink drying or similar operation.

As indicated above, in a preferred embodiment of the burner, all the component housing members are of equal length "A" and of equal external modular appearance. However, the terminal housing members 12 and 13 embody certain internal differences relative to each other and also relative to the intermediate housing members 11 which latter are identical among themselves. These differences along with other features are explained in the following description of the enlarged detail sectional views

of FIGURES 7 to 18 derived from the several views in FIGURES 1 and 2.

Referring first to FIGURES 9, 10 and 11 of this embodiment, each of the intermediate housing members **11** is in the nature of a cast iron elongate open ended hollow body having transverse machined end faces **36** and **37** (see FIG. 12) defining a length of gas conduit **38** communicating with a machined slot (see FIG. 18) which extends from one end face to the other. In the preferred embodiment, this gas conduit is of rectangular configuration three sides of which are defined by relatively thin walls **39**, **40** and **41**, the fourth side having been formed by a pair of wall portions **42** and **43** extending symmetrically towards each other from the side walls **40** and **41** and separate from each other by slot "S" which in turn is defined by parallel side faces **45** and **46**. This slot is of substantial depth "D" because of the relative thickness of the wall portions **42** and **43**, which thickness in turn is such as to accommodate therein a pair of open-ended conduits **47** and **48** extending along and parallel to respective sides of the slot, and through which cooling water may be passed when the assembled burner is in operation.

Each end portion of each of these coolant conduits is bored out or widened so as to form a cylindrical recess **50** defining an internal annular shoulder **51**. A pair of the intermediate housing members **11** may be endwise assembled with the recesses **50** in the one member accurately matched upon those in the other sleeve members **52** are press fitted into respective matching recesses **50** (see FIGURES 12 and 18). Thus bringing the transverse end faces of the housing members in close contact with one another. The sleeve members thus act as a positive sealing means for the coolant liquid at the junctures of the housing members and also as locating pin members ensuring the accurate alignment with each other of the slots "S" which in turn are machined into the castings in accurate relationship with respect to the position of the press-fitted sleeve members or locating pin means **52**.

After a pair of housing members are thus assembled in alignment with the end of the sleevemembers, they are endwise secured together by means of a set of interconnecting screw bolts **53** located in the respective corners of the rectangular gas conduits **38**. The cylindrical heads of these bolts have hexagonally shaped sockets **55** for use therewith of an internal socket W for example in the manner illustrated in FIGURE 17.

As may be seen from FIG. 12, the intermediate housing members **11** of length "A" have lugs **56** formed interiorly in each corner of the casting, having straight drilled holes through which extend the screw bolts **53**. The opposite end of the housing member has similarly located interior corner lugs **57** tapped in alignment with respective holes in the other lugs, to receive the threaded end of connecting bolts for securing the respective housing members to each other.

The right-hand terminal housing member **13** as viewed in FIGURES 1 and 2 and further illustrated in FIG. 13, differs internally from the intermediate housing members **11** in that internal corner lugs **58** formed on the castings extend at least a substantial portion of the length of the member and preferably the full length as measured from one end face of the member to the other. These longitudinal continuous lugs allow for the use of fractional lengths of basic length of a modular component unit as will be further explained.

Both ends of these longitudinal lugs have longitudinally directed co-axial holes, the ones at the left hand end for receiving the aforementioned interconnecting screw bolts **53**, the ones at the right hand for receiving respective end screw bolts **59** securing the closure flange **20** in position upon the end face of the burner housing and thus defining the respective end of both the gas conduits and the burner slot.

The terminal housing member **13** further has internal thread (see FIG. 15) provided in the outer or right hand ends of a pair of coolant conduits **60**, for the reception of a pair of pipe connector nipples **61** which in turn have soldered connections **61***a* with the respective ends of the U-shaped transfer pipe **23** for the cooling water. These pipe nipples extend through oversized holes in the closure flange **20** so that this flange after loosening of the screw bolts **59** (see FIG. 16) may be slid outwardly on pipe or tubular connection **23** for gaining access to the insert strips **25**.

The left hand terminal housing member **12** as seen in FIGURES 1 and 2 and further illustrated in FIG. 11, differs from the intermediate housing members **11** only in that the outer or left hand ends of coolant conduits **62** have internal thread for the reception of pipe connector nipples **63** soldered to water inlet pipe **22** and to outlet **24** respectively in a manner similar to the connection of transfer pipe **23**. Again, since these nipples extend through oversized holes in the closure flange **19**, this flange after loosening of end screw bolts **64** may be slid outwardly for gaining access to the insert strips **25**.

Further, in each of the component housing members **11**, **12**, **13** there are as a pair of transverse screw bolts **20***a* indicated in FIGURES 1 and 2 and clearly shown FIG. 9. Tightening these bolts the side walls of the burner housing may be tensioned against each other insuring close fit of the insert strip in the slot, so that these strips will be closely confined between the sides **45** and **46** of the burner slot while endwise confined by the closure flanges **19** and **20**.

To proceed with the assembly of a desired composite burner length, the right hand terminal housing member is first prepared by having the sleeve members **52** press-fitted into the respective inner end portions of the respective coolant conduits to abut against respective internal shoulders **50**. The first of the intermediate housing members **11** may then be forced over the projecting ends of the sleeve members as indicated in FIG. 18 bringing the respective end faces of the housing members into contact with one another, whereby the sleeve members act as locating pins ensuring that the respective slots of the assembled members are brought into accurate alignment with each other. Fastening bolts **53** may then be applied and tightened for securing the connections as illustrated in FIG. 17. A suitable thin coating of sealing compound may have been applied between the abutting end faces of the members. The remaining intermediate housing members, that is, any suitable number thereof, are then connected one to the other by a similar procedure, it being noted that now all connecting screws **53** are pointed towards the right hand end of the burner.

The left hand terminal housing member **12** is then connected in a similar manner to the last of the intermediate members, establishing the desired composite length "L" of the burner housing. The insert strips **25** can now be inserted into the composite burner slot **15**, whereupon the transverse screws **20***a* may be tightened thus firmly interconnecting the side walls of the burner housing and further securing the insert strips in the slot.

The pipe connector nipples **61** and **63** may then be applied to and tightened in the respective terminal housing members, whereupon the respective end flanges may be applied and fastened. Finally, the soldered connections may be established between the water pipes and the respective pipe connector nipples, and the gas supply pipes be connected to the closure flanges.

In this manner any practical burner length is readily obtainable ranging from the length of a single housing member such as the right hand terminal member per se, to any suitable multiple of the length thereof. Yet with the feature of the longitudinal lugs **58** provided in the housing member **13**, fractional lengths are also readily attainable. As indicated in FIGURES 13 and 14, if a fractional length "B" of the basic modular length "A" of the

housing members is to be added to a straight multiple thereof according to this feature it is only necessary by a simple cut-off machining operation for example on the line X—X (see FIG. 13) to shorten the unit length of the member to the fractional length "B," and to provide in the new end face of the lugs 58 the necessary tapped holes 66 for the end screws of the closure flange, and also to provide the internal thread 67 in the coolant conduits for the reception therein of the pipe connector nipples.

From the foregoing it will be seen that the composite water cooled burner of this invention not only eliminates the warping problem so critical for special applications requiring a considerable burner length to provide an uninterrupted uniform flame and heat effect and accurate spacing from the web, but also eliminates casting and other manufacturing problems enabling the production of any desired burner length on short notice and at a relatively low production cost, since the basic modular component units may be kept in stock either as row castings requiring a minimum of basic forms, or prepared with the machining operations readily and accurately performable because of the compactness and small weight of the component members.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of ribbon burners differing from the types described above with or without the water cooling feature.

While the invention has been illustrated and described as embodied in a longitudinal water cooled ribbon type gas burner, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing from the spirit of the invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. A longitudinal ribbon type gas burner, comprising a plurality of open-ended longitudinal housing members in the form of castings of substantially rectangular cross-sectional configuration, each member having transverse end faces and a longitudinal burner slot extending from one end face to the other, to constitute a composite burner housing when connected end to end, defining a gas conduit having a correspondingly composite burner slot extending from end to end of the housing and containing ribbon burner insert strips therein; locator pin means provided between mutually adjoining end portions of said members for insuring alignment thereof with one another with respect to said composite slot; bolt connections between mutually adjoining housing members located internally of said gas conduit and in the corners of said rectangular configuration; a closure member for each end of said composite burner housing, fastened to the respective end faces thereof and defining the ends of the composite slot; transverse tightening bolts interconnecting opposite side wall portions of said housing members; and gas inlet means for said burner.

2. A longitudinal ribbon type gas burner, comprising a plurality of open-ended longitudinal housing members in the form of castings of substantially rectangular cross-sectional configuration, each member having transverse end faces and a longitudinal burner slot extending from one end face to the other, to constitute a composite burner housing when connected end to end defining a gas conduit having a correspondingly composite burner slot extending from end to end of the housing and containing ribbon burner strips therein; said housing members also having formed therein a coolant conduit along each side of the slot with each conduit registering with the corresponding coolant conduit in the endwise adjoining housing member; a sleeve member press-fitted into each pair of registering ends of the respective coolant conduits effective to seal said conduits at their juncture and to provide locator means to ensure alignment of said housing members with respect to said composite slot; bolt connections between mutually adjoining housing members located internally of said gas conduit and in the corners of said rectangular configuration; an end closure member for each end of said composite burner housing and fastened to the respective end faces thereof; inlet means for the supply of coolant to said conduits; outlet means for discharging spent coolant from said coolant conduits; and gas inlet means for said burner.

3. The gas burner according to claim 2, with the addition of transverse tightening bolts interconnecting opposite side walls of said housing members.

4. In a gas burner, a longitudinal modular housing member in the form of a casting having transverse machined end faces and defining a gas conduit of rectangular cross-sectional configuration and having a machined longitudinal burner slot extending from one end face to the other, said housing also having formed therein a pair of longitudinal coolant conduits extending along respective sides of the slot, each end of each coolant conduit having a bored-out widened portion for receiving a sleeve member press-fitted therein and so spaced relative to said slot that in the endwise assembly of a pair of such modular housing members the sleeves will serve as locating pins ensuring the accurate alignment of the slots at the juncture of said members, one end of said casting being formed with internal lugs located in the respective corners of said conduit and having drilled holes for the passage therethrough of connecting bolts, the other end of the casting being formed with correspondingly located lugs provided with tapped holes co-axial with respective drilled holes in the other lugs, adapted for thread engagement therewith of connecting bolts.

5. A longitudinal ribbon type gas burner, comprising a plurality of open-ended longitudinal housing members in the form of castings each of which has transverse end faces and a longitudinal burner slot extending from one end face to the other, to constitute a composite burner housing when connected end to end defining a gas conduit having a correspondingly composite burner slot extending from end to end of the housing and having ribbon burner strips therein; a pair of press-fitted cylindrical locator pins provided at each juncture between mutually adjoining end portions of said housing members to ensure alignment thereof with one another with respect to said composite slot; bolt connection means for separately interconnecting the respective mutually adjoining end portions of said housing member, at least one housing member being formed with longitudinal lugs extending from end to end of the housing member, each lug having in each end thereof a threaded hole extending normal to said transverse faces for bolt connections with adjoining members, whereby said one housing member is adapted to be of a fractional length; a closure member for each end of said composite burner housing, fastened to the respective end face thereof; gas inlet means for said burner; and transverse tightening bolts interconnecting opposite side walls of said housing members.

6. A longitudinal ribbon type gas burner, comprising a plurality of open-ended longitudinal housing members in the form of castings each having transverse end faces and a longitudinal burner slot extending from one end face to the other, to constitute a composite burner housing defining a gas conduit having a correspondingly composite burner slot extending from one end face to the other and containing ribbon burner insert strips, said housing members also having formed therein a coolant con-

duit along each side of the slot; locator pin means provided at each juncture between mutually adjoining housing members for ensuring alignment of said members with respect to said coolant conduits as well as with respect to said composite slot, said locator pin means comprising a sleeve member press-fitted into each of said mutually adjoining ends of respective coolant conduits, at least one housing member being formed with longitudinal throughgoing lugs, each lug having in each end thereof a threaded hole extending normal to said transverse faces for bolt connections with adjoining members, said one housing member adapted to be of a fractional length; bolt connection means securing mutually adjoining end portions of the aligned housing members to one another; a closure member for each end of said composite burner housing, fastened to the respective end face thereof; inlet means for the supply of coolant fluid to said coolant conduits; outlet means for discharging coolant from said conduits; and gas inlet means for said burner housing.

7. A longitudinal ribbon type gas burner, comprising a plurality of open-ended longitudinal housing members each having transverse end faces and having a longitudinal wall portion of extra thickness having therein a longitudinal burner slot of correspondingly substantial depth and extending from one said transverse end face to the other, said plurality constituting a composite burner housing defining a linear gas conduit having a correspondingly composite open ended burner slot extending from one end face of said burner housing to the other and containing ribbon burner insert strips, each of said housing members also having formed therein a pair of longitudinal coolant conduit sections accommodated in said wall portion opposite each other along respective sides of said burner slot and also extending from one said transverse end face to the other and constituting a pair of composite coolant ducts extending from end to end of said composite burner housing, each of the mutually adjoining end portions of said conduits being prepared with a counter bore; a cylindrical sleeve member tightly fitted into the mutually adjoining counter bores of respective coolant conduits of the housing members for insuring alignment of said housing members with respect to said coolant conduits as well as with respect to said burner slots while sealing the junctures of said coolant conduits; connecting means between the mutually adjoining end portions of the thus aligned housing members for securing them to one another; a closure member for each end of said composite burner housing, fastened to the respective transverse face thereof; inlet means for the supply of coolant fluid to said coolant conduits; outlet means for discharging coolant fluid from said coolant conduits; and gas inlet means for said burner housing.

8. The gas burner according to claim 7, wherein said composite burner slot has uninterrupted communication with the interior of said burner housing along the length thereof, and wherein there are provided transverse tightening bolts interconnecting opposite side walls of said housing members.

9. The gas burner according to claim 7, wherein said composite burner slot has uninterrupted communication with the interior of said burner housing along the length thereof, and wherein there are provided transverse connecting and tightening means effective between the side walls of the respectively housing members, comprising at least one transversely extending internally threaded portion in one side wall, and a transverse bolt member having a head and a shaft portion extending through the opposite side wall and screwed into said threaded portion.

10. In a gas burner, a longitudinal open-ended housing member having transverse end faces and having a longitudinal wall portion of extra thickness having therein a longitudinal burner slot of substantial depth and extending from one said transverse end face to the other, and also having formed therein a pair of longitudinal coolant conduits accommodated in said wall portion opposite each other relative to said burner slot and also extending from one said transverse end face to the other, each coolant conduit having each end portion thereof prepared with a counter bore, cylindrical sleeve members tightly fitted into the counter bores of at least one end of said housing member to a substantial portion of its length, a similarly constructed and prepared second housing member adjoining said end of the first mentioned housing member, having cooling conduits and counter bores, with the remaining length of said sleeve members tightly fitted into the counter bores of adjoining housing member for insuring the alignment of said housing member with respect to said coolant conduits as well as with respect to said burner slots while sealing the juncture of said coolant conduits, and means for securing the thus aligned housing members to one another.

11. In a gas burner, a longitudinal open-ended housing member having transverse end faces and having a longitudinal wall portion of extra thickness having therein a longitudinal burner slot of substantial depth extending from one said transverse end face to the other and having uninterrupted communication with the interior of said housing member along the length thereof, and also having formed therein a pair of longitudinal coolant conduits accommodated in said wall portion opposite each other relative to said burner slot and also extending from one said transverse end face to the other, each coolant conduit having each end portion thereof prepared with a counter bore, for the reception of a cylindrical sleeve member tightly fitted therein and adapted to be similarly tightly fitted into an adjoining similarly prepared housing member, both ends of said housing member furthermore having means adapted for bolt connection with said adjoining housing members, and at least one transverse tightening bolt interconnecting opposite side walls of said housing member.

12. In a gas burner, a longitudinal open-ended housing member having transverse end faces and having a longitudinal wall portion of extra thickness having therein a longitudinal burner slot of substantial depth extending from one said transverse end face to the other and having uninterrupted communication with the interior of said housing member along the length thereof, and also having formed therein a pair of longitudinal coolant conduits accommodated in said wall portion opposite each other relative to said burner slot and also extending from one said transverse end face to the other, each coolant conduit having each end portion thereof prepared with a counter bore, for the reception of a cylindrical sleeve member tightly fitted therein and adapted to be similarly tightly fitted into an adjoining similarly prepared housing member, both ends of said housing member furthermore having means adapted for bolt connection with said adjoining housing members, and transverse connecting and tightening means effective between the side walls of said housing member, said tightening means comprising at least one transversely extending internally threaded portion in one side wall, and a transverse bolt member having a head and a shaft portion extending through the opposite side wall and screwed into said threaded portion.

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