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GAS BURNER FOR SPACE HEATING

Original Filed June 8, 1949

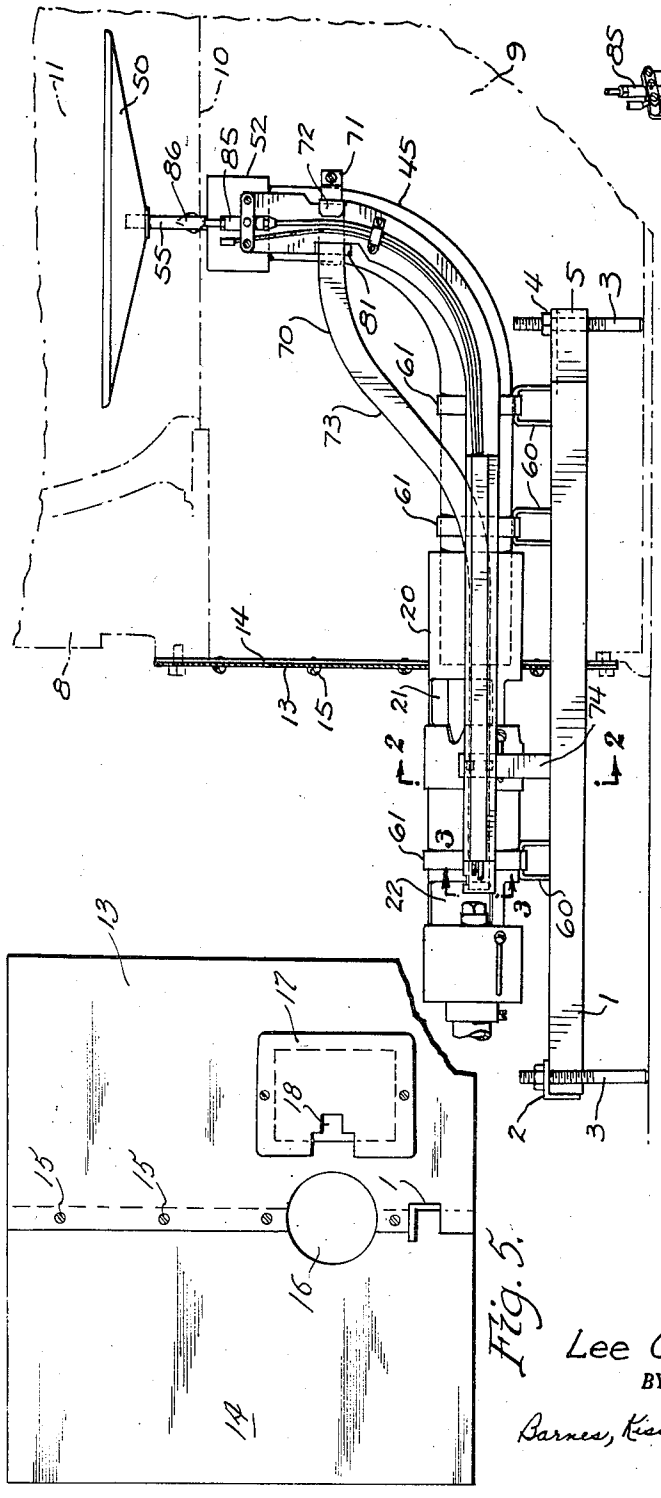


Fig. 1.

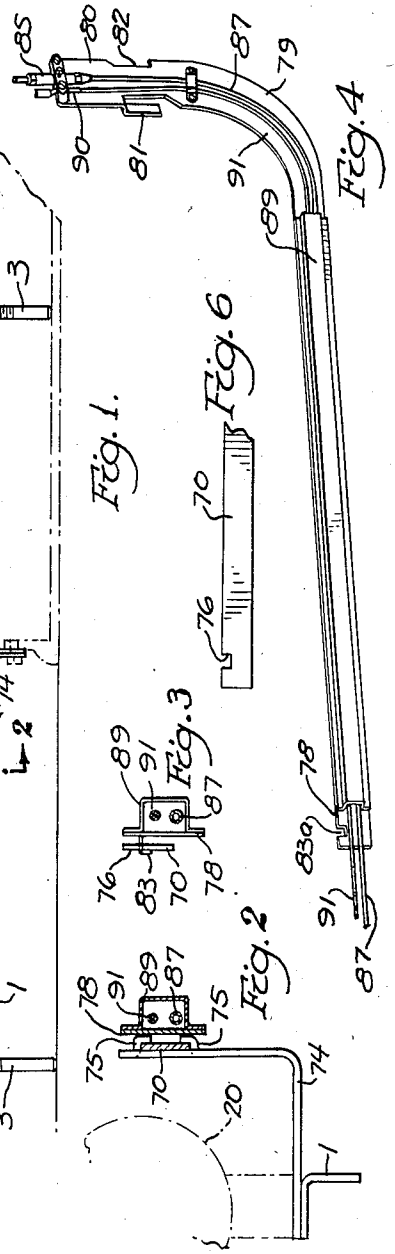


Fig. 4

Fig. 6

Fig. 3

Fig. 2

Fig. 5.

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GAS BURNER FOR SPACE HEATING

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Original application June 8, 1949, Serial No. 97,836, now Patent No. 2,694,445, dated November 16, 1954. Divided and this application September 17, 1954, Serial No. 456,721

4 Claims. (Cl. 158—115)

This invention relates to a gas burner and it has to do particularly with a gas burner for space heating purposes.

This application is a division of copending application of this inventor, Serial No. 97,836, filed June 8, 1949, which has matured into Patent Number 2,694,445, issued on November 16, 1954. The gas burner structure of the present invention is admirably adapted as a conversion burner in the sense that it may be installed in a furnace which, previous thereto, was arranged to consume a different type of fuel, such as coal or oil, or the burner of the present invention may be used as a replacement for another gas burner. On the other hand, the burner of the present invention, and particularly some of the features thereof, may be employed with original equipment.

The general objects of the invention are to provide a simplified light weight burner and burner structure which can be manufactured economically so that the retail cost thereof may be reflected in the price to the ultimate purchaser and user. A further feature is the provision of a structure which may be very easily serviced, this being particularly true in connection with the pilot.

A furnace structure made in accordance with the invention is shown in the accompanying drawings:

Fig. 1 is a side elevational view of a burner constructed in accordance with the invention showing the same mounted in a furnace with some of the furnace structure shown in broken lines.

Fig. 2 is a view largely in section taken on line 2—2 of Fig. 1 showing a mounting for the pilot support.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1 showing the mounting for the pilot support.

Fig. 4 is a side elevational view of the supporting bracket for the pilot burner.

Fig. 5 is an elevational view of the plates for closing the opening in the furnace and showing how the plates are formed for receiving the burner, its support and the pilot support.

Fig. 6 is an elevational view of the outer end of the track for supporting the pilot burner.

The support for the burner advantageously comprises a member 1 and a cross piece 2 provided with floor engaging screw threaded studs 3 which are threaded into the cross support and the inner end 5 of the member 1 and which may be locked in position by nuts 4.

As shown in Fig. 1, a portion of a furnace is illustrated at 8 and the support is disposed to lie partially within an area 9 within the furnace. This is the lower part of the furnace and if the furnace previously used coal, the area 9 could have been the ash pit. The former grate level of the furnace is indicated at about the broken line 10 while the combustion chamber is illustrated at 11. The compartment 9 is to be closed and this may be done by two sheet metal members 13 and 14 secured together in their central portion by screws 15 and fashioned to provide an opening 16. These members are also fashioned so that when they are brought together they define an L shaped opening through which the body member 1

of the support passes. One plate, such as the plate 13, is provided with an opening with a cover therefor, as shown at 17, which when in position, leaves an opening 18 for purposes which will presently appear. The cover 17 may be readily removed.

The mixing tube is shown in Fig. 1 as having an outer tube 20 provided with secondary air openings 21 and primary air openings 22. The element 20 is designed to telescopingly receive the main burner tube 45, which is somewhat of L shape so that its free end extends upwardly as shown. The burner tube supports a baffle or deflector 50 preferably in the form of a pan shaped stamping of heat resisting metal such as one of the stainless steels. A post or rod 55 supports the deflector and the post is secured to the burner tube by means of a member 52.

The described mixer tube and burner tube assembly is mounted on the support for which purpose the body member of the support is provided with a number of U-shaped brackets each shown at 60, and a series of clamps 61 (Fig. 1) are engaged around the exterior tubular form and are passed through the U-shaped brackets and tightened each by a screw (not shown). The two clamps 61 disposed within the furnace chamber 9 engage the tube 45 while the exterior clamp 61 engages the outer tube 20 and is of slightly larger size. The structure is disposed as shown in Fig. 1, with the tube 20 and the frame member 1 passing through the enclosing plates 13 and 14 with the parts so positioned that the secondary air apertures 21 are disposed just outside the closure plates 13 and 14.

The pilot burner and its support are so arranged that the same may be easily withdrawn for service. There is a track in the form of a bar or strip of metal, as at 70, with its inner end mounted on the tube 45 as by means of a clamp 71 and the extreme inner end is folded back upon itself to provide a hook 72. Clamp 71 may comprise a split collar secured by suitable means to bar 70 and encircling tube 45, the ends of the collar being drawn together for clamping the tube by a screw as illustrated. The intermediate portion of this bar is inclined as at 73 and the portion of the track which extends out through the plates 13 and 14 is preferably horizontally disposed and is supported by a bracket 74 carried by the support member 1 (Fig. 2). This bracket has struck out lugs 75 which receives and supports the track. The track near its outermost end is provided with a notch 76 (Fig. 6).

The pilot burner support has a horizontal body portion 78 in the form of a strip with an upturned part 79 terminating in a substantially vertically disposed end 80. The support has a struck out hook 81 for slidably fitting over track 70 and a notch 82 is provided for engagement within the hook 72. The support 78 has a struck out and turned down portion which forms a hook 83, the notch left by the struck out hook being illustrated at 83a (Fig. 4).

In the normal position of the parts, the hook 72 embraces the support in the notch 82 which the hook 81 rests upon the track and the hook 83 is fitted in the notch 76. The pilot burner is secured to the upstanding end of the support, the pilot burner being shown at 85 and from the burner a pilot flame as at 86 burns. The gas conduit for supplying gas to the pilot flame is shown at 87 and it is secured to the support by means of a clamp, as shown. The support 78 is provided with a box or conduit structure 89 through which the conduit 87 extends. A temperature control device, such as a thermo-couple may also be carried by the support, this temperature sensitive device being illustrated at 90 (Fig. 4) and having

conductors as indicated at **91**, extending along and secured to the support and extending through conduit **89**.

As heretofore explained, the closure panels **13** and **14** and, specifically, the removable closure **17** is provided with an opening **18** for snugly receiving the composite cross structure of the track and pilot support so that the same extends therethrough, as shown in Figs. 1 and 5. Should the pilot burner need service, such, for example, for cleaning or should the temperature control device need service, the plate **17** is removed and then the outer end of the support **78** is slightly elevated so that the hook **83** is removed from the notch **76** and then the support is pulled outwardly. In this action the hook **81** rides along the track and the inner end of the support may be pulled through the opening to the outside of the closure plates **13** and **14** for the service operation. To replace the pilot the support is merely pushed inwardly, the hook **81** rides up the incline on the track and the support comes to rest as it engages in the hook **72** whereupon the hook **83** is engaged in the notch **76**. To do this, of course, it will be necessary to uncouple the outside connections for the conduit **87** and the leads **91** for the temperature sensitive device.

I claim:

1. In a gas burner for use with a heating device such as a furnace having a combustion chamber defined by a closure, a conduit like structure adapted for passing through such a closure for supplying a gaseous combustible mixture, a burner tube connected to the conduit like structure and having a portion positioned substantially horizontally and having an upturned open end and adapted to be disposed within the furnace chamber, a track member having one end mounted on the upturned end of the burner tube and having its opposite end disposed adjacent the tubular like structure and adapted to pass through such a closure, a pilot support, a pilot flame burner carried by the support and normally positioned adjacent the open end of the burner tube, said pilot support having an inner end and having an outer end adapted to extend through such a closure, the inner end of the pilot support freely slidably engaging the track to be carried thereby, interengaging means between the outer ends of the track and the support for holding the support in position, said interengaging means being releasable whereby said outer end of said pilot support may be manually shifted to slide said inner end along the track to bring the pilot burner to an exposed position relative to such a closure.

2. In a gas burner for use with a heating device such as a furnace having a combustion chamber defined by a closure, a conduit like structure adapted for passing through such a closure for supplying a gaseous combustible mixture, a burner tube connected to the conduit like structure and having a portion positioned substantially horizontally and having an upturned open end and adapted to be disposed within the furnace chamber, a track member having one end mounted on the upturned end of the burner tube and having its opposite end disposed adjacent the tubular like structure and adapted to pass through such a closure, a pilot support, the support having a portion positioned substantially horizontally and having an upturned inner end portion, said portions being disposed respectively adjacent said horizontal portion and end portion of the burner tube, a pilot flame burner carried by the support and normally positioned adjacent the open end of the burner tube, said horizontal portion of said pilot support being adapted to extend outwardly through such a closure, the inner end of the pilot support

freely slidably engaging the track to be carried thereby, interengaging means between the outer ends of the track and the support for holding the support in position, said interengaging means being releasable, whereby the outer end of said pilot support may be manually shifted to slide said inner end along the track to bring the pilot burner to an exposed position relative to such a closure.

3. In a gas burner for use with a heating device such as a furnace having a combustion chamber defined by a closure, a conduit like structure adapted for passing through such a closure for supplying a gaseous combustible mixture, a burner tube connected to the conduit like structure and having a portion positioned substantially horizontally and having an upturned open end and adapted to be disposed within the furnace chamber, a track member having one end mounted on the upturned end of the burner tube and having its opposite end disposed adjacent the tubular like structure and adapted to pass through such a closure, a pilot support, a pilot flame burner carried by the support and normally positioned adjacent the open end of the burner tube, said pilot support having an inner end and having an outer end adapted to extend through such a closure, the inner end of the pilot support having a struck out portion forming a hook freely slidably engaging over the track to be carried thereby, the outer end of the track having a notch therein, the outer end of the pilot support having a struck out portion forming a hook releasably engaging within the notch, whereby said outer end of said pilot support may be manually shifted to slide said inner end along the track to bring the pilot burner to an exposed position relative to such a closure.

4. In a gas burner for use with a heating device such as a furnace having a combustion chamber defined by a closure, a conduit like structure adapted for passing through such a closure for supplying a gaseous combustible mixture, a burner tube connected to the conduit like structure and having a portion positioned substantially horizontally and having an upturned open end and adapted to be disposed within the furnace chamber, a track member having one end mounted on the upturned end of the burner tube and having its opposite end disposed adjacent the tubular like structure and adapted to pass through such a closure, a pilot support, the support having a portion positioned substantially horizontally and having an upturned inner end portion, said portions being disposed respectively adjacent said horizontal portion and end portion of the burner tube, a pilot flame burner carried by the support and normally positioned adjacent the open end of the burner tube, said horizontal portion of said pilot support adapted to extend outwardly through said a closure, the inner end of the pilot support having a struck out portion forming a hook freely slidably engaging over the track to be carried thereby, the outer end of the track having a notch therein, the outer end of the pilot support having a struck out portion forming a hook releasably engaging within the notch, whereby the outer end of said pilot support may be manually shifted to slide said inner end along the track to bring the pilot burner to an exposed position relative to such a closure, the inner end of the track being folded back on itself to form a third hook for engaging the inner end of the pilot support to limit the inward motion thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

2,467,626 Norman ---------- Apr. 19, 1949