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S. C. GULICK

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BURNER SUPPORTING MEANS

Original Filed March 10, 1928

Fig. 1.

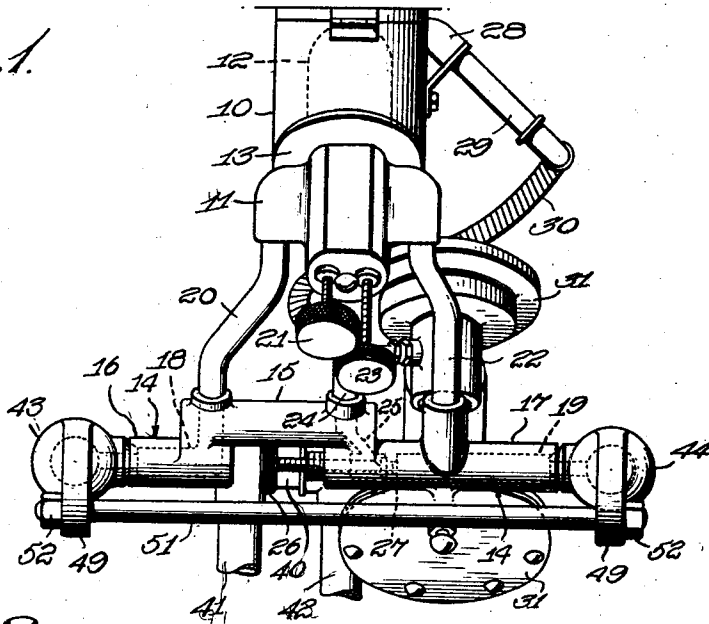


Fig. 2.

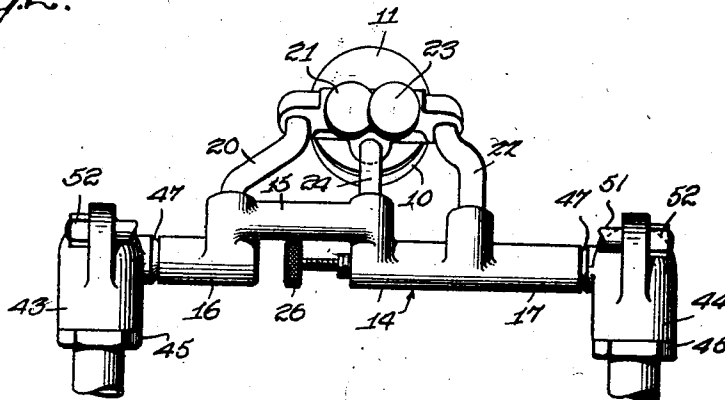


Fig. 3.

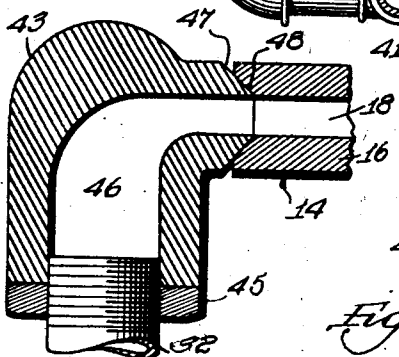
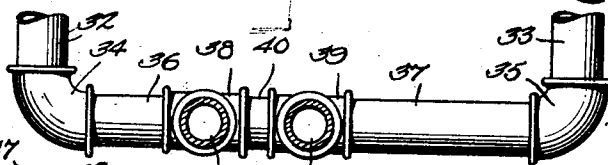
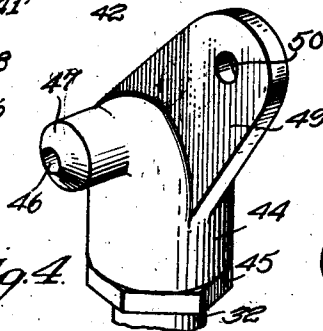


Fig. 4.



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BURNER SUPPORTING MEANS

Original application filed March 10, 1928, Serial No. 260,762. Divided and this application filed October 15, 1928. Serial No. 312,677.

This invention relates to burner supporting means, and more particularly to a supporting device for oil burners and the like, and is a division of my copending application Serial No. 260,762, filed March 10th, 1928.

In my copending application referred to, I have described and claimed a particular type of oil burner of the atomizer type adapted for use in connection with boilers, furnaces and the like, and the burner is illustrated as being supported by the means forming the subject matter of the present invention, although such means is not claimed in the copending application. As will become apparent, the burner supporting means is not limited in its application to the specific burner disclosed in my copending application, but readily may be employed in connection with burners of other types.

An important object of the invention is to provide novel means for supporting a burner whereby the latter readily may be removed for repair or replacement without the necessity of disassembling piping connections, etc.

A further object is to provide a device of the character referred to wherein a single fastening member is provided for securing the burner in position, the fastening element being readily releasable in the event the burner operates improperly, to permit a new burner to be arranged in operative position permanently, or temporarily while repairs are being made, thus eliminating the necessity of placing the furnace or boiler out of commission until the repairs have been made.

A further object is to provide a device of the character referred to having spaced portions between which a burner is adapted to be received, and to provide means for clamping the burner in position in such a manner as to permit its ready removal.

A further object is to provide burner supporting means of the character referred to wherein the burner is adapted to be swung about an axis of rotation to permit adjustments and minor repairs thereto without dismounting the burner.

A further object is to provide a device of

the character referred to which functions not only as supporting means for the burner, but also as means for supplying either fuel or fuel and air to the burner, the burner readily being removable for the purposes previously stated.

A further object is to provide a device of the character mentioned having oppositely arranged portions engageable with one or more inlet conduits of the burner for supporting the latter, the conduit or conduits of the burner coacting with the supporting means in engagement therewith whereby fuel or fuel and air may be supplied to the burner.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawings I have shown one embodiment of the invention. In this showing,

Figure 1 is a plan view,

Figure 2 is a rear elevation,

Figure 3 is a detail sectional view showing the connection between the support and the burner, and,

Figure 4 is a detail perspective view of one of the supporting members and associated elements.

Referring to the drawings, the numeral 10 designates a tubular member communicating with the interior of a furnace, preferably through the fire door thereof. A burner indicated as a whole by the numeral 11 is provided with a burner nozzle 12 projecting into the tube 10, the burner being provided with an annular flange 13 seating against the outer end of the tube.

In the present instance, the burner is illustrated as being of the fuel oil type, but it will become apparent that the device forming the subject matter of the present invention is adapted for use with burners of a variety of types. The burner includes a preferably cast portion 14 having an offset portion 15 intermediate its ends. The burner is provided at opposite ends with aligned portions 16 and 17 having passages 18 and 19 therein respectively. The passage 18 is supplied with liquid fuel in a manner to be referred to, and this fuel flows to the burner through a suitable pipe 20 which is rigidly

connected at its ends respectively to the burner 11 and the cast body 14. The flow of oil from the burner is controlled by a suitable knob 21 connected to a control valve (not shown) within the burner.

In a similar manner, air is supplied to the burner from the passage 19 through a pipe 22 which also is rigidly connected at its ends respectively to the burner 11 and cast body 14. The air supplied to the burner through pipe 22 is controlled by a knob 23 connected to a suitable valve (not shown) within the burner 11.

Supplemental air is supplied to the burner through a third pipe 24 which is rigidly connected at one end to the burner 11 and at its opposite end to the offset portion 15 of the cast body 14. The pipes 20, 22 and 24 constitute the means for rigidly connecting the burner to the body 14. The passage 19 supplies air to the pipe 24 through a passage 25, the flow of air being controlled by operation of a handle 26 connected to a valve 27 adjacent the inner end of the passage 19.

A gas pilot light 28 preferably burns at all times to provide positive ignition means for the oil burner when the latter is turned on after having been shut down. The pilot light is mounted upon one end of a pipe 29 which is supplied with gas through a flexible hose 30, the latter element being connected to a pilot light control mechanism indicated in part by the numeral 31. The control mechanism for the pilot light is disclosed in detail in my copending application above referred to, and need not be described in connection with the present invention.

The supporting means for the burner includes a pair of upstanding vertical members 32 and 33, preferably formed of ordinary piping and connected at their lower ends to elbows 34 and 35 respectively. These elbows in turn communicate with pipes 36 and 37 which are connected at their inner ends to T's 38 and 39. The T's preferably are rigidly connected by a short connecting element 40 which is closed, thus preventing communication between the pipes 36 and 37. An oil supply pipe 41 is connected to the T 38 while an air supply pipe 42 is similarly connected to the T 39.

Supporting elements 43 and 44 are preferably threaded on the upper ends of the pipes 32 and 33 respectively, and are positively fixed in position with respect thereto by lock nuts 45. Each of the supporting elements referred to preferably is in the form of a cast elbow having a passage 46 therethrough. The inner extremity of each of the supporting elements is provided with a frusto-conical face 47 adapted to engage a frusto-conical seat 48 formed in the adjacent end of the cast body 14. The frusto-conical face 47 and seat 48 are preferably ground to a perfect

fit whereby they may be brought into engagement to form a leak-proof joint.

Means is provided for clamping the supporting elements 43 and 44 against the cast body 14 to prevent leakage past the frusto-conical faces and seats. As shown in Figures 1, 2 and 4, each of the supporting elements is provided with a preferably integral ear 49 having an opening 50 therein. The openings 50 are in alinement with each other and are adapted to receive a clamping rod 51 provided at its ends with nuts 52 engaging the outer faces of the ears 49.

The operation of the device is as follows:

The vertical pipes 32 and 33 may be of any desired height, depending upon the height of the burner from the floor. The pipes 41 and 42 preferably are fixed against the floor, but may be arranged thereabove if desired. The vertical pipes 32 and 33 possess a substantial degree of resiliency, and when it is desired to place the burner in position, these pipes are sprung apart at their upper ends sufficiently to permit the cast body 14 to be arranged in position. The pipes 32 and 33 are then permitted to spring together, whereupon the rod 51 is inserted in the openings 50 and the nuts 52 are applied and tightened. This action draws the supporting elements 43 and 44 toward each other and brings the frusto-conical faces and seats 47 and 48 into firm engagement with each other to provide leak-proof joints. Thus, oil may be supplied to the burner through pipe 41 and the associated piping connections of the supporting element, and thence into the passage 18, through pipe 20 and to the burner to be consumed thereby. Similarly, air may be supplied to the burner through the pipe 42 and the associated piping connections of the burner support, and thence to the burner through the pipes 22 and 24.

It will be apparent that the burner readily may be removed merely by unscrewing one of the nuts 52 and withdrawing the rod 51. It occasionally happens that the operation of a burner becomes faulty from a cause which cannot be readily corrected. Under such conditions, with the present device, a replacement burner immediately may be placed in position and the operation of the furnace continued while the original burner is being repaired. Thus, it is not necessary to place the furnace or boiler out of commission as ordinarily is necessary with burner constructions which can be removed only by dismantling threaded piping and similar connections. For the purpose of permitting inspection of the outlet orifice of the burner, the tube 10 may be provided with a hinged upper portion as shown in Figure 1, and when this portion of the tube is open, the burner may be swung upwardly about the common axis of the frusto-conical faces and seats 47 and 48 without loosening the rod 52.

Thus the outlet orifice, or any other parts of the burner readily may be inspected without dismounting the burner.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. Mounting means for an oil burner comprising a body forming a part of the burner and having alined oppositely projecting substantially horizontal end portions provided with frusto-conical end faces, a pair of members arranged outwardly of said body and provided with inner alined frusto-conical faces adapted to engage said first named frusto-conical faces, a vertical member supporting each of said first named members, said vertical members being connected to each other at their lower ends and free from each other intermediate their ends, and possessing a sufficient degree of resiliency to permit them to move outwardly to release said body from said first named members, each of said first named members being provided with a laterally projecting ear, and a bolt passing through said ears for drawing said first named members inwardly toward each other to bring said frusto-conical faces into engagement with each other.

2. Mounting means for an oil burner comprising a body forming a part of the burner and having alined substantially horizontal end portions provided with frusto-conical faces, a pair of members arranged outwardly of said body and provided with inner frusto-conical faces adapted to engage said first named faces, said body and said members being provided with passages forming supply means for the burner and communicating with each other through said frusto-conical faces, the passages in said members being continuous and unbroken, a resilient pipe anchored at one end and connected at its other end to each of said members and communicating with the passage therein, and releasable clamping means extending between said members adjacent and parallel to the axis of said frusto-conical faces.

3. Mounting means for an oil burner comprising a body forming a part of the burner and having alined substantially horizontal end portions terminating in frusto-conical faces, a pair of elbows arranged outwardly of said body and each having one branch provided with a frusto-conical face adapted to engage against one of said first named frusto-conical faces, said body and said elbows being provided with passages forming supply means for the burner and communicating with each other through said frusto-conical

faces, the passages through said elbows being continuous and unbroken, a pair of substantially parallel pipes possessing a substantial degree of resiliency and being anchored at one end, said pipes being free from each other intermediate their ends and having their opposite ends threaded in the other branches of said elbows, each of said elbows being provided with a laterally extending integral ear, and a releasable bolt passing through said ears for drawing said elbows toward each other.

In testimony whereof I affix my signature.

SEELEY C. GULICK.

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