United States Patent [19]

Porter

[11] 3,872,888

[45] Mar. 25, 1975

[54] MEANS FOR MOUNTING A CONTROL DEVICE ON A FUEL SUPPLY MANIFOLD

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[52] U.S. Cl. 137/608, 251/145, 285/197

[51] Int. Cl. F16l 41/00

[58] Field of Search 251/145, 146; 137/608; 285/197, 325

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Assistant Examiner—Gebald A. Michalsky
Attorney, Agent, or Firm—Robert D. Sommer; Lawrence E. Freiburger

[57] ABSTRACT

A fuel supply manifold having a first sidewall with an opening extending therethrough and a control device sealingly disposed against the first sidewall. The manifold further has second and third sidewalls adjacent to the first sidewall which each have an indentation therein forming a lip extending from each edge of the first sidewall. Rigid fingers extend from the control device around the lips. Finally, a screw is threaded through one of the fingers so that it engages the manifold tightly securing the control device on the manifold.

7 Claims, 4 Drawing Figures

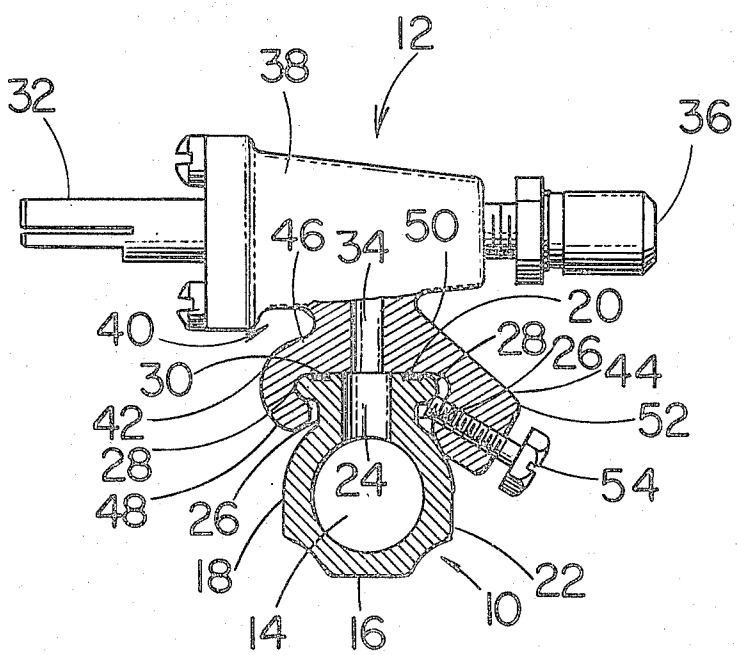


FIG. 1

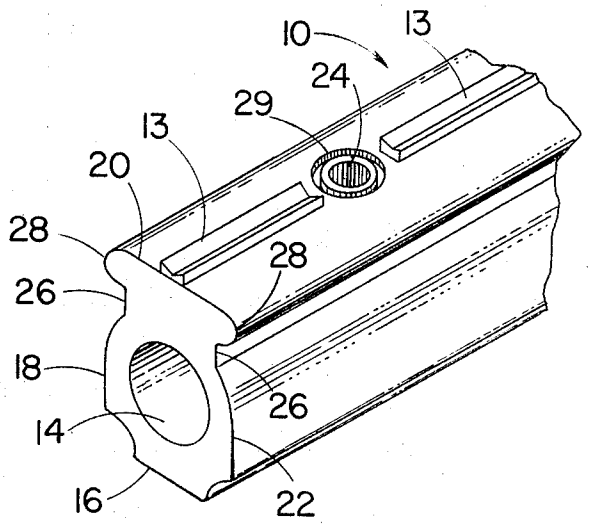

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FIG. 2

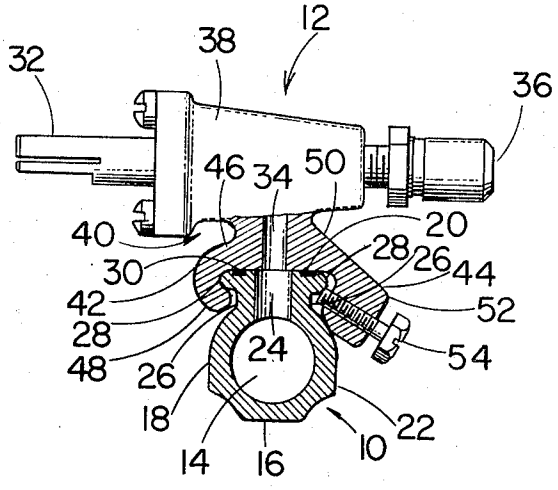

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FIG. 3

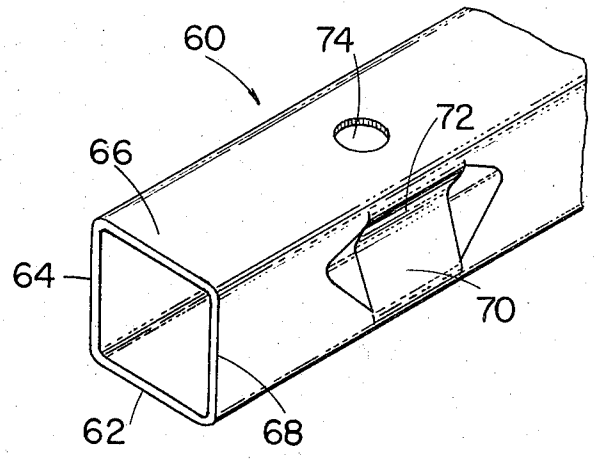
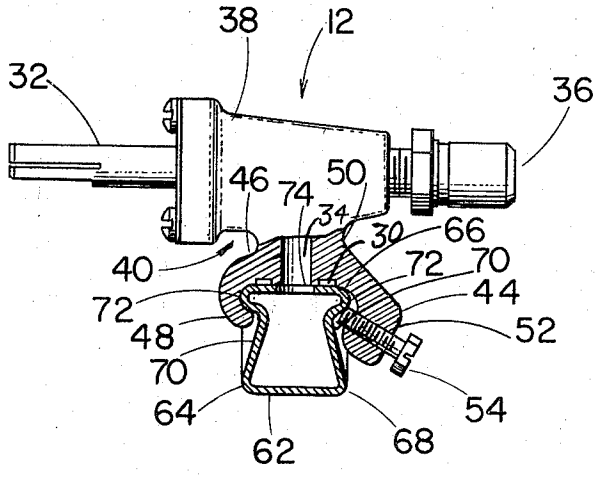

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FIG. 4


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MEANS FOR MOUNTING A CONTROL DEVICE ON A FUEL SUPPLY MANIFOLD

BACKGROUND OF THE INVENTION

In the prior art, the conventional methods for mounting and securing gas burner valves and oven controls to a fuel supply manifold have proved to be satisfactory in many aspects. However, the prior art gas burner valve and oven control mountings have also proved to be disadvantageous in certain aspects.

In one prior art method for mounting gas burner valves and the like, the manifold was provided with a female thread. The burner valve or the like was provided with a threaded stem adapted to be threaded into the female threads in the manifold. This method requires some drilling and tapping of the manifold whereby metal chips are produced. The metal chips, of course, are not desirable and have to be removed.

In order to overcome the disadvantages of the abovementioned method, the method disclosed in U.S. Pat. No. 3,602,480 has been proposed. In this method the control device is secured to the manifold by resilient bracket means. One of the biggest disadvantages of this method is the fact that a gasket between the control device and the manifold is relied on heavily to prevent any gas leaks from the mounting to the atmosphere. In case a fire should occur burning the gasket, gas can leak into the atmosphere almost completely unrestricted creating a very dangerous condition.

SUMMARY OF THE INVENTION

The present invention provides a useful mounting construction for securing a control device to a fuel supply manifold. The manifold for use with the present invention may be extruded or may be formed from rectangular tubing. Disadvantages of the prior art method are overcome by creating metal to metal contact between the control device and the manifold in addition to a gasket seal therebetween. Thus, should a fire occur burning out the gasket the amount of gas leaking from the mounting is restricted by the metal to metal contact.

In a first embodiment of the invention, the manifold may be extruded, for example, such that a first side is formed on which the burner valves and other control devices are mounted, and second and third sides are formed adjacent to the first side which each have a groove or indentation running along the length of the manifold. The burner valves or the like have rigid fingers which extend from the valve around the first side of the manifold. A screw, threaded through one of the fingers and extending toward the manifold, is tightened to secure the burner valve or the like on the manifold.

In the second embodiment of the invention, the control device may be secured on a tubular manifold. The tubular manifold may be rectangular tubing having indentations formed at the proper place. The burner valve or the like is locked onto the manifold in the same manner as before.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will hereinafter be described in conjunction with the drawing figures in which:

FIG. 1 is a broken isometric view of an extruded manifold;

FIG. 2 is a view in partial cross section of a burner valve mounted on the manifold shown in FIG. 1 in accordance with the present invention;

FIG. 3 is a broken isometric view of a tubular manifold; and

FIG. 4 is a view in partial cross section of a burner valve mounted on the manifold shown in FIG. 3 in accordance with the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing Figures and in particular FIGS. 1 and 2 there is shown a fuel supply manifold generally indicated by reference numeral **10** upon which there is mounted a burner valve **12.** The manifold **10** may be extruded from an aluminum alloy, for example, so that it has a uniform cross section throughout its length. Other metal forming operations, although not practical for various reasons, may be used to form the manifold if desired.

The manifold **10** has a bore **14** through which fuel flows extending along its length. In addition the manifold **10** may be provided with a rib **13** which extends along the entire length of the manifold and from which sections may be removed to provide a mounting position for the burner valve or other control device. Four sidewalls **16, 18, 20** and **22** define the exterior shape of the manifold. Sidewall **16** is shown in the drawings as being flat but it may take on any convenient shape. Upper sidewall **20** is provided with a number of openings **24** extending into the bore **14,** the number of openings being dependent on the number of valves and the like to be mounted. The sidewalls **18** and **22** are identical and each have a groove or indentation **26** running along their length. The indentations **26** form lips **28** which extend from the edge of sidewall **20.** Finally a ring-like recess **29** may be machined in sidewall **20** concentric with opening **24** into which a gasket **30** is disposed.

Since the actual structure of the valve **12** or other control device other than the mounting bracket is not important to the present invention, the valve will not be described in great detail. It should be sufficient to say that the valve may have a rotatable shaft **32** which when rotated controls the flow of fuel from the valve inlet **34** to the valve outlet **36.** The shaft **32** extends into the valve housing **38** which houses the valve components.

In accordance with the present invention the mounting portion of the valve **12,** generally indicated by reference numeral **40,** includes the valve inlet **34** and a pair of rigid fingers **42** and **44.** Finger **42** has a portion **46** which rests on sidewall **20** and a portion **48** which wraps around flange **28** and into groove **26.** Finger **44** has a first portion **50** which rests on sidewall **20** and a second portion **52** which extends generally downward and toward the manifold as is shown in FIG. **2.** A screw **54** is threaded through second portion **52** to secure the valve **12** to manifold **10** when tightened.

In mounting the valve **12** on the manifold **10,** it can be seen that the screw **54** should be withdrawn from portion **52** as far as possible. Then the end **48** of finger **42** should be placed in groove **26,** the valve seated properly on the manifold with valve inlet **34** and manifold opening **24** aligned. Then screw **54** can be tightened to secure the valve on the manifold.

In the embodiment of the invention shown in FIGS. 3 and 4, the same reference numerals will be used to indicate the same features as disclosed in the previous embodiment. Shown in FIG. 3 is a rectangular manifold 60 made from steel tubing for example. The manifold 60 has a number of sidewalls 62, 64, 66 and 68. Sidewalls 64 and 68 each have at least one indentation 70 formed by conventional means which forms a flange or lip 72 extending from sidewall 66. Upper sidewall 66 has an opening 74 for each valve to be mounted on the manifold.

The valve mounting assembly shown in FIG. 4 is in every respect the same as that shown in FIG. 3 except for the gasket mounting in FIG. 4. In FIG. 4 the gasket 30 is mounted concentric with opening 34 in a small recess machined in mounting portion 40 of the valve. It should be understood that the gasket may be mounted in either the manifold or the valve mounting portion, depending on the type of manifold used.

From the above discussion of the invention it should be obvious to those skilled in the art that the present invention provides an improved seal between the manifold and the control device mounted thereon. Should anything happen to the gasket between the control device and the manifold, the metal to metal contact between the control device and the manifold will act to restrict the flow of fuel from the mounting.

It should be obvious to those skilled in the art that modifications may be made without departing from the true spirit of the invention which is defined in the following claims.

What is claimed is:

1. In combination, an elongated fuel supply manifold having a longitudinally extending fuel carrying bore, first elongated sidewall means on said manifold disposed parallel to the axis of said bore, said manifold including second and third spaced elongated sidewalls longitudinally disposed one adjacent each longitudinal edge of said first sidewall means, a lip extending from each longitudinal edge of said first sidewall means adjacent said second and third sidewalls in substantially the same plane as said first sidewall means, said manifold having an opening in said first sidewall means in fuel communication with the fuel carrying bore of said manifold, a control device mounted in fuel tight engagement with said first sidewall means, said control device having an inlet in alignment with the opening in said first sidewall means whereby said control device may control the flow of fuel from said fuel carrying bore to a fuel consuming device, said control device having rigid fingers overlying and extending around said lips to prevent lateral movement of said control device relative to said manifold, and a screw threaded through one of said fingers and engaging one of said lips to securely hold said control device in sealed relation to said manifold.

2. The combination as claimed in claim 1, wherein said fuel supply manifold is an extruded body of a substantially uniform cross section.

3. The combination as claimed in claim 1, wherein said manifold is tubing of a substantially rectangular cross section.

4. The combination as claimed in claim 1, wherein there is a gasket disposed between said first sidewall means and said control device to seal said control device on said manifold.

5. The combination as claimed in claim 1, wherein there are a plurality of openings in said first sidewall means, and a control device mounted in fuel tight engagement with said first sidewall means for each of said openings.

6. In combination, an elongated fuel supply manifold having a longitudinally extending fuel carrying bore, first elongated sidewall means on said manifold disposed parallel to the axis of said bore, said manifold including second and third spaced elongated sidewalls longitudinally disposed one adjacent each edge of said first sidewall means, first and second opposed indentations in said second and third spaced sidewalls, respectively, said manifold having an opening in said first sidewall means in fuel communication with the fuel carrying bore of said manifold, a control device having a surface mounted in fuel tight engagement with said first sidewall means, said control device having an inlet opening in said surface aligned with the opening in said first sidewall means whereby said control device controls the flow of fuel from said fuel carrying bore to a fuel consuming device, a gasket disposed between said first sidewall means and the surface of said control device to prevent fuel leaks from the interface of said control device and said first sidewall means, said control device having rigid fingers extending into said first and second opposed indentations to prevent lateral movement of said control device relative to said manifold, and a screw threaded through one of said fingers and engaging one of said second and third sidewalls to press said first sidewall means against said control device.

7. The combination as claimed in claim 6, wherein there are a plurality of first and second opposed indentations, an opening in said first sidewall means aligned with each of said plurality of first and second opposed indentations, and a control device mounted in fuel tight engagement with said first sidewall means for each said opening.

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