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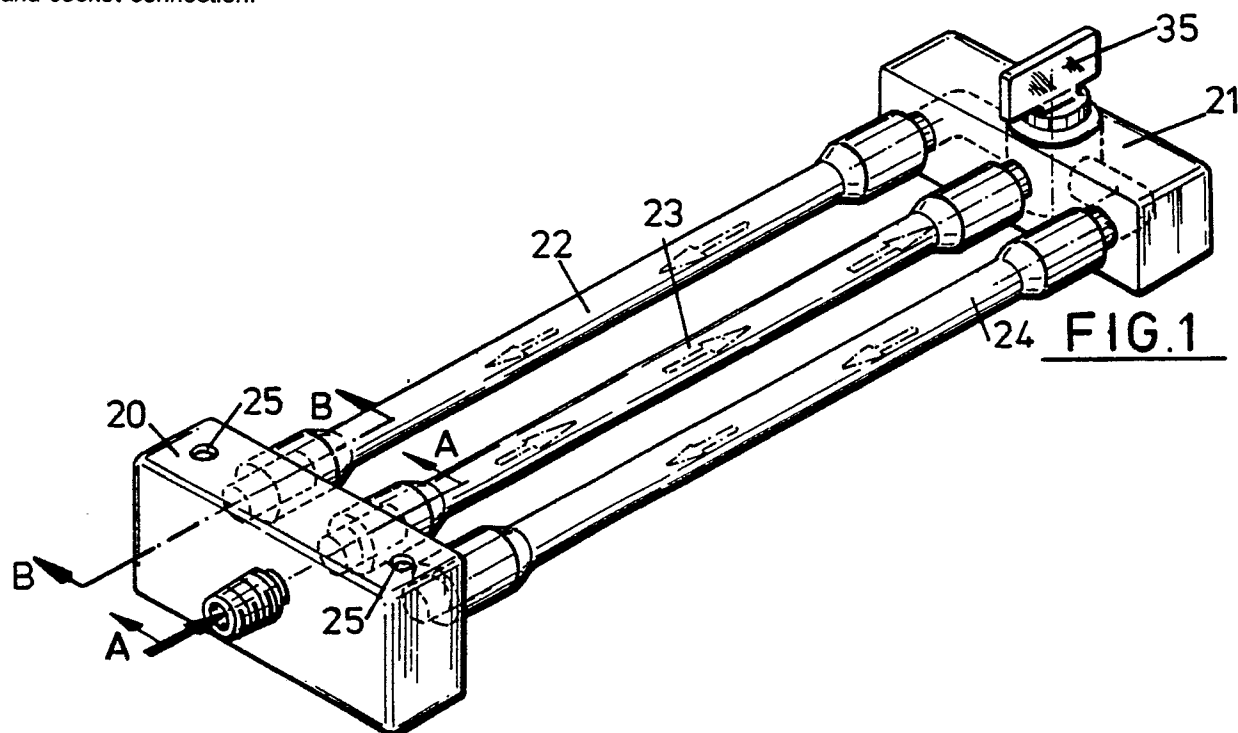
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Manchester, M3 3JY(GB)(54) **A control assembly for a gas burning appliance.**

(57) A control assembly for a gas burning appliance comprises a gas injector manifold and a gas valve manifold spaced apart and connected by a gas flow pipe. The connection between the gas flow pipe and the gas injector manifold and/or the gas valve manifold is a plug connection, preferably a push-fit spigot and socket connection.



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A CONTROL ASSEMBLY FOR A GAS BURNING APPLIANCE

This invention relates to a control assembly for a gas burning appliance such as a gas fire.

With existing gas appliances the gas delivery and distribution pipes of the control assembly are generally relatively complex in shape i.e. non-straight and are formed with a screw threaded connection at one end and a flared connection at the other end which makes their manufacture relatively complex and expensive.

The installation of such a control assembly and its maintenance are consequently laborious and time consuming.

It is an object of the present invention to provide a control assembly for a gas burning appliance which obviates or mitigates the aforesaid drawbacks.

According to the present invention there is provided a control assembly for a gas burning appliance comprising a gas injector manifold and a gas valve manifold spaced and connected by a gas flow pipe wherein the connection between the gas injector manifold and/or the gas valve manifold is a plug connection.

Preferably the plug connection is a push-fit spigot and socket connection.

Preferably the gas injector manifold and the gas valve manifold are formed with tubular spigots onto which the ends of the pipe are a push fit. Alternatively the gas injector manifold and gas valve manifold may be provided with sockets, preferably bush sockets, into which the ends of the pipe are a push fit. The gas injector manifold may be formed with spigot connections onto which the pipe is a push fit while the gas valve manifold may be provided with a socket, preferably a bush socket, into which the other end of the pipe is a push fit or vice versa.

Preferably the gas flow pipe is a straight pipe.

Preferably there is a sealing element between the engaged ends of the gas flow pipe and the spigot or socket connection at the gas injector manifold and gas valve manifold.

The control assembly may comprise more than one gas flow pipes, for example a gas delivery pipe and a gas distribution pipe. Preferably these pipes are straight pipes arranged in parallel relationship.

Where the gas flow pipe or pipes are a push fit onto the tubular spigots of the manifolds, they may, instead of being completely straight, be flared at their ends.

Preferably the control assembly is mounted on a support plate having at one end a housing arrangement into which the gas valve manifold can be socketed with the control tap for the gas valve

exposed while the plate at its end adjacent to the gas injector manifold has screw receiving sleeves onto which can be screwed a retention plate forming part of the gas injector manifold and overlying the gas flow pipe or at least one flow pipe if more than one is provided.

According to another aspect of the present invention there is provided a control assembly for a gas burning appliance comprising a gas injector/gas valve manifold connected to a gas burner as disclosed in our U.K. Patent No. 2152655B or our U.K. Patent Application No. 86 26650 filed 7th November 1986, the connections between the manifold and the gas burner being plug connections.

Preferably, the plug connections according to this aspect of the present invention are spigot and/or socket connections as hereinbefore defined.

Preferably the plug connections on the manifold are capable of swivelling to accommodate non-parallel inlets to the gas burner as is disclosed in our aforesaid Patent Application No. 84 31475.

Embodiments of the present invention will now be described by way of example with reference to the accompanying drawings in which :

Fig. 1 is a perspective view of a control assembly for a gas burning appliance according to the present invention;

Fig. 2 is a detail view of the control assembly of Fig. 1;

Fig. 3 is a section on the line A-A of Fig. 1;

Figs. 4 and 5 are fragmentary part sectional views of alternative connections between a gas flow pipe and a gas injector manifold;

Fig. 6 is a section on the line B-B of Fig. 1;

Figs. 7 and 8 are diagrammatic views showing the control assembly mounted on its support plate; and

Fig. 9 is a diagrammatic view of a gas injector/control valve manifold suitable for a burner according to our Patent Application No. 84 31475.

Reference is made firstly to Figs. 1 to 3 and 6 and there is shown in these Figures a control assembly for a gas burning appliance comprising a gas injector manifold 20, a gas control valve manifold 21 spaced from the gas injector manifold 20 by three parallel straight pipes 22, 23, 24 which are plug connected to the manifolds 20 and 21 as will be described later.

The pipes 22, 23 and 24 are straight parallel pipes, the pipe 23 conveying gas from the gas injector manifold 20 to the gas control manifold 21 which distributes the gas to gas flow pipes 22 and 24. The pipes 22 and 24 then convey gas to the injector via the manifold 20 and outlets 25.

The pipes 22 to 24 are plug connected to the two manifolds 20 and 21.

Each of the manifolds (see Figs. 3 and 6) has a projecting pipe spigot 26 surrounded by an O-ring or similar seal 27 and the end of the respective pipe 22 to 24 is simply plugged onto the projecting spigot pipe 26 at each end thereby sealingly connecting the pipes to the two manifolds. The O-ring or similar seal may alternatively be provided inside the gas flow pipe as indicated at 27A in Fig. 2, in which case of course the spigot pipe 26 is a simple cylindrical pipe.

In Fig. 6 the connection between the pipe 23 and the gas control valve manifold 21 is shown and this is identical to that between the gas injector manifold and the pipe 23 as is shown in Fig. 3.

Fig. 4 shows an alternative arrangement in which the gas injector manifold (it could also or alternatively be the gas control valve manifold) is shown socketed as indicated at 28 with a sealing gasket arranged in the socket to receive the gas flow pipe, for example 23.

In the embodiment shown in Fig. 5 the gas injector manifold 20 is again socketed as indicated at 30 and there is arranged internally of the socket an O-ring or similar seal, the gas flow pipe, for example 23, simply being push-fitted into the socket and the seal.

Referring now to Figs. 7 and 8 there is shown a support arrangement for the control assembly which comprises a plate 32 having at one end a housing configuration 33 into which the control valve manifold 21 can be socketed the housing 33 being slotted at 34 to expose the tap 35 of the control valve.

At the other end the manifold 20 has a retention plate 36 and is thereby screwed to the plate 32 using screws 37 thus securing the pipes 22 to 24 between the manifolds 20 and 21.

Finally there is shown diagrammatically in Fig. 9 a gas injector/control valve manifold 38 to which is adapted to be connected a gas burner as disclosed in either of our aforesaid Patent Applications. In this case, particularly in respect of the gas burner disclosed in Patent Application No. 84 31475 the plug connection 39 can swivel as indicated by arrow 40 to accommodate the gas inlets to the burner which are non-parallel.

Claims

1. A control assembly for a gas burning appliance comprising a gas injector manifold and a gas valve manifold spaced apart and connected for gas flow therebetween by a gas flow pipe, the control assembly being characterised in that the connec-

tion between the gas flow pipe and the gas injector manifold and/or gas valve manifold is a plug connection.

2. A control assembly as claimed in claim 1, in which the plug connection is a push-fit spigot and socket connection.

3. A control assembly as claimed in claim 2, in which the gas injector manifold and the gas valve manifold are formed with tubular spigots onto which the ends of the gas flow pipe are a push-fit.

4. A control assembly as claimed in claim 2, in which the gas injector manifold and gas valve manifold are provided with sockets, preferably bush sockets, into which the ends of the gas flow pipe are a push-fit.

5. A control assembly as claimed in claim 2, in which the gas injector manifold is formed with a spigot connection onto which the gas flow pipe is a push-fit while the gas valve manifold is provided with a socket, preferably a bush socket, into which the other end of the gas flow pipe is a push fit or vice versa.

6. A control assembly as claimed in any one of claims 1 to 5, in which the gas flow pipe is a straight pipe.

7. A control assembly as claimed in any one of claims 1 to 6, comprising a sealing element between the engaged ends of the gas flow pipe and the spigot or socket connection at the gas injector manifold and gas valve manifold.

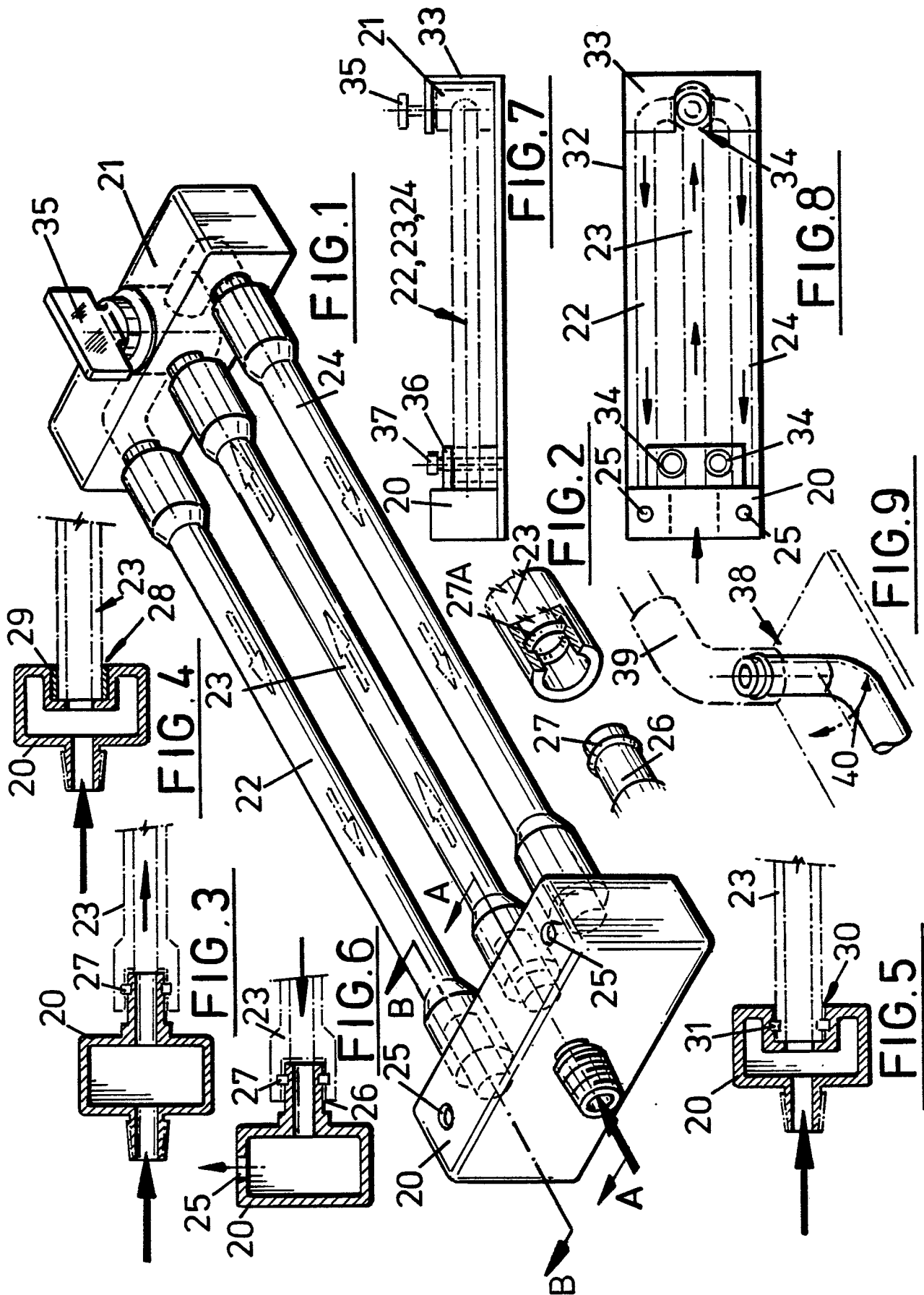
8. A control assembly as claimed in any one of claims 1 to 7, comprising more than one gas flow pipe, for example a gas delivery pipe and a gas distribution pipe.

9. A control assembly as claimed in claim 8, in which the pipes are straight pipes arranged in parallel relationship.

10. A control assembly as claimed in claim 3, in which the ends of the gas flow pipe are flared.

11. A control assembly as claimed in any one of claims 1 to 10, and mounted on a support plate having at one end a housing arrangement into which the gas valve manifold is socketed with a control tap for the gas valve exposed while the plate at its end adjacent to the gas injector manifold has screw receiving sleeves onto which can be screwed a retention plate forming part of the gas injector manifold and overlying the gas flow pipe or the or at least one flow pipe if more than one is provided.

12. A control assembly as claimed in claim 3, in which the manifold spigots are capable of swivelling to accommodate non-straight or bent ends of the gas flow pipe.





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	FR-A-2 188 796 (JUNKERS) * Page 3, lines 7-20; figures 1-3 *	1,2,3, 6,8,9, 10	F 24 C 3/00 F 24 C 3/08
X	US-A-2 894 570 (DOWNING) * Column 2, lines 11-46; figures 1-3 *	1,2,3, 6	
A	DE-B-1 174 471 (FLÖGEL) * Columns 3,4, claims; figure 2 *	1,7	
A	FR-A-2 089 997 (JUNKERS)		
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			F 24 C F 23 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 10-07-1987	Examiner VANHEUSDEN J.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			