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(54) An oil-fired apparatus

(57) An oil-fired burner comprises a well 12 for oil and a channel 48 for supporting a wick 37. The wick 37 is fed with the oil from the well 12. The channel 48 has a surface which, in use, lies beneath the oil level L in the burner. The surface defines an opening 50 directly above the well 12 to allow oil from the well 12 to enter the channel 48 and feed the wick 37 (Fig. 1)

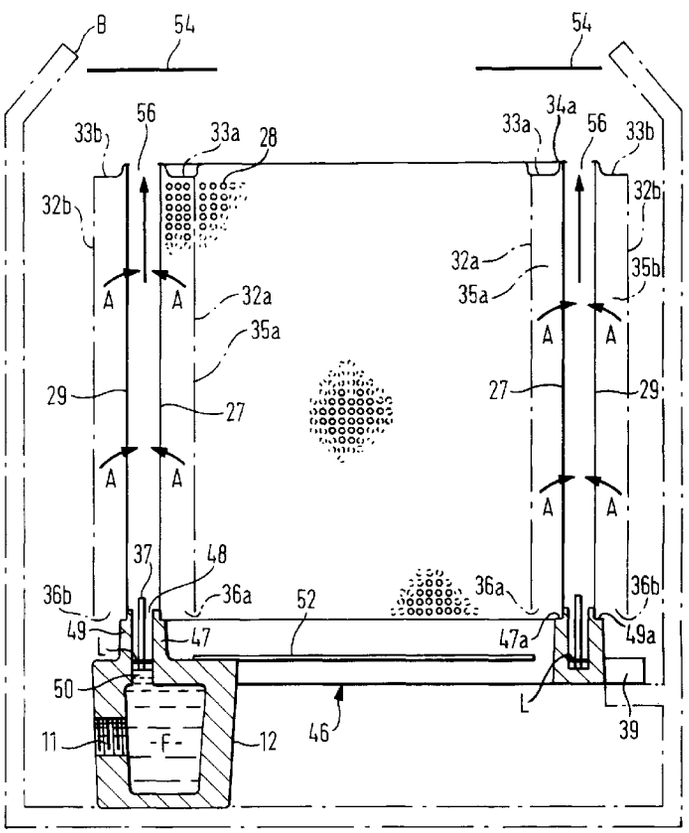

FIG. 1

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Description

The invention relates to an oil-fired apparatus.

One previous form of oil-fired apparatus comprises a base member having a central well which receives oil from a supply and which is surrounded by an annular channel which supports a wick. The wick lies between annular shells supported by the base member. The well is connected to the channel by one or more radial passageways via which oil from the well can be supplied to the wick.

Whilst that construction works perfectly well it is somewhat difficult to cast the base member with its radial passageways.

It is an object of the invention to provide an improved oil-fired apparatus.

According to the invention there is provided an oil-fired apparatus comprising a well for oil and a channel for supporting a wick which is fed with the oil from the well, the channel having a surface which, in use, lies beneath the oil level in the apparatus and which defines an opening directly above the well to allow oil from the well to enter the channel and feed the wick.

In that way the need for radial passageways connecting the channel with the well is eliminated.

The channel may be endless and is preferably annular. In such a case the well is preferably offset from the centre of the annulus.

Two upwardly extending perforated shells may be provided, one on each side of the channel. Where the channel is annular, the channel and shells may be concentric.

Closure means may be provided to close an upper end of the inner shell to prevent air escaping therethrough.

The apparatus may include air inlet means for admitting air into the apparatus.

The well and channel may be formed in a base member. Where shells are provided, they may be supported by the base member.

A plurality of channels may be provided, each channel having a said surface which, in use, lies beneath the oil level in the burner apparatus and which defines an opening directly above the well to allow oil from the well to enter the channel.

Oil-fired apparatus in accordance with the invention will now be described by way of example with reference to the accompanying drawings in which:

Fig. 1 is a vertical cross-section through oil-fired apparatus in the form of burner, in accordance with the invention, on the line Y-Y in Fig. 2 and

Fig. 2 is a plan view of a base member of the burner of Fig. 1.

In Fig. 1 the burner comprises an annular base member 46 which has walls 47, 49 defining an annular channel 48. The base member 46 has a well 12 arranged off-centre of the base member towards an edge thereof. The well 12 has an inlet port 11 for diesel oil and an outlet port 50 in an upper part thereof directly beneath the channel allowing direct fluid communication between the well 12 and the annular channel 48. The base member 46 has three mounting lugs 39 equispaced around its periphery.

The walls 47, 49 have respective shoulders 47a, 49a at their upper ends. The shoulders 47a, 49a support inner and outer shells 27, 29 respectively. The shells 27, 29 are formed with a multiplicity of perforations 28, eg. of approximately 2mm in diameter.

The inner shell 27 may have an unperforated cylindrical inner shroud (32a) (shown in broken lines) located therewithin and mounted thereto by means of an annular mounting flange 33a secured to the upper end of the shroud 32a as viewed in Fig. 1. The flange 33a has an upwardly extending out-turned section 34a which rests on the upper edge of the inner shell 27. The inner shroud 32a is spaced inwardly of the inner shell 27 so as to define a passageway 35a for air A. The flange 33a closes the upper end of the passageway 35a. An inlet 36a to the passageway 35a is defined between the lower edge of the shroud 32a and the wall 47.

An unperforated cylindrical outer shroud 32b (shown in broken lines) may be arranged around the outer shell 29. The shroud 32b is mounted on the outer shell 29 in similar manner to the way in which the inner shroud 32a is mounted on the inner shell 27. The outer shroud 32b is spaced from the outer shell 29 so as to define a passageway 35b for air. The flange 33b closes the upper end of passageway 35b. An inlet 36b for the passageway 35b is defined between the lower edge of the shroud 32b and the wall 49.

A cylindrical wick 37 is located in the annular channel 48, so as to extend around the well 12.

A circular base restrictor 52 extends from a top wall of the well 12 across the space defined by the annular base member 46.

An annular top restrictor 54 is mounted above an annular opening 56 defined between the shells 27, 29, and through which combustion gases can leave the burner.

The restrictors 52, 54 restrict the flow of air through the burner. The top restrictor 54 also aids combustion of unburned fuel in the combustion gases.

In use, the burner of Fig. 1 is mounted in an appliance such as a boiler by means of the lugs 39. Fuel F is fed to the well 12 from a supply (not shown). The fuel fills the well 12 and rises within the annular channel 48 to the level indicated at L. The oil is absorbed by the wick 37 and during operation of the burner is maintained at level L.

Fuel F on the wick 37 is ignited, air entering the burner via openings 36a, 36b, up the passageways 35a, 35b and through the perforations 28 in shells 27, 29. Where shrouds 32a, 32b are provided, the shells 27, 29 are heated by the burning oil and the shrouds 32a, 32b

minimise the heat loss from the shells 27, 29. The burner is thus maintained at a sufficient temperature to burn diesel oil effectively.

The burner produces a flame which burns until almost the top of the shells 27, 29 which reduces problems of carbonization.

With the present invention, the base member 46 can be produced more easily than the base of our previous design as there is no need to utilise radial passageways.

It is envisaged that the base 46 will be made of cast iron and the shells 27, 29 and where provided, the shrouds 32a, 32b will be made from sheet metal such as stainless steel.

Claims

1. An oil-fired apparatus comprising a well for oil and a channel for supporting a wick which is fed with the oil from the well, the channel having a surface which, in use, lies beneath the oil level in the apparatus and which defines an opening directly above the well to allow oil from the well to enter the channel and feed the wick.

2. An oil-fired apparatus according to claim 1 in which the channel is endless.

3. An oil-fired apparatus according to claim 1 or 2 in which the channel is annular.

4. An oil-fired apparatus according to claim 3 in which the well is offset from the centre of the annulus.

5. An oil-fired apparatus according to any preceding claim in which two upwardly extending perforated shells are provided, one on each side of the channel.

6. An oil-fired apparatus according to claim 5, and where the channel is annular, in which the shells are concentric with the channel.

7. An oil-fired apparatus according to claim 5 or 6 in which closure means is provided to close an upper end of the inner shell to prevent air escaping therethrough.

8. An oil-fired apparatus according to any preceding claim in which air inlet means is provided for admitting air into the apparatus.

9. An oil-fired apparatus according to any preceding claim in which the well and channel are formed in a base member.

10. An oil-fired apparatus according to any claim 11 and where shells are provided in which each shell is supported by the base number.

11. An oil-fired apparatus according to any preceding claim in which a plurality of channels are provided, each channel having a said surface which, in use, lies beneath the oil level in the apparatus and which defines an opening directly above the well to allow oil from the well to enter the channel.

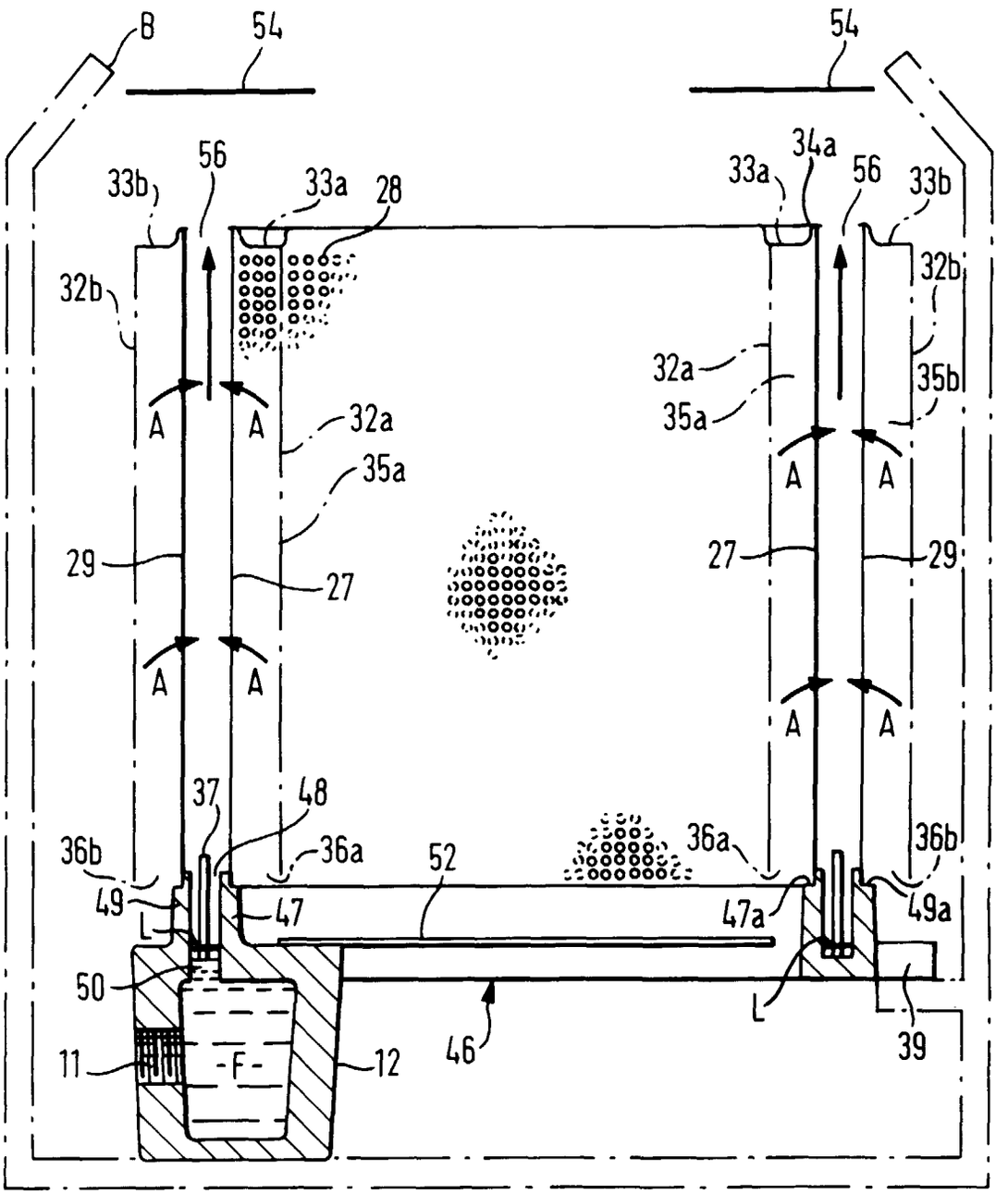
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FIG. 1

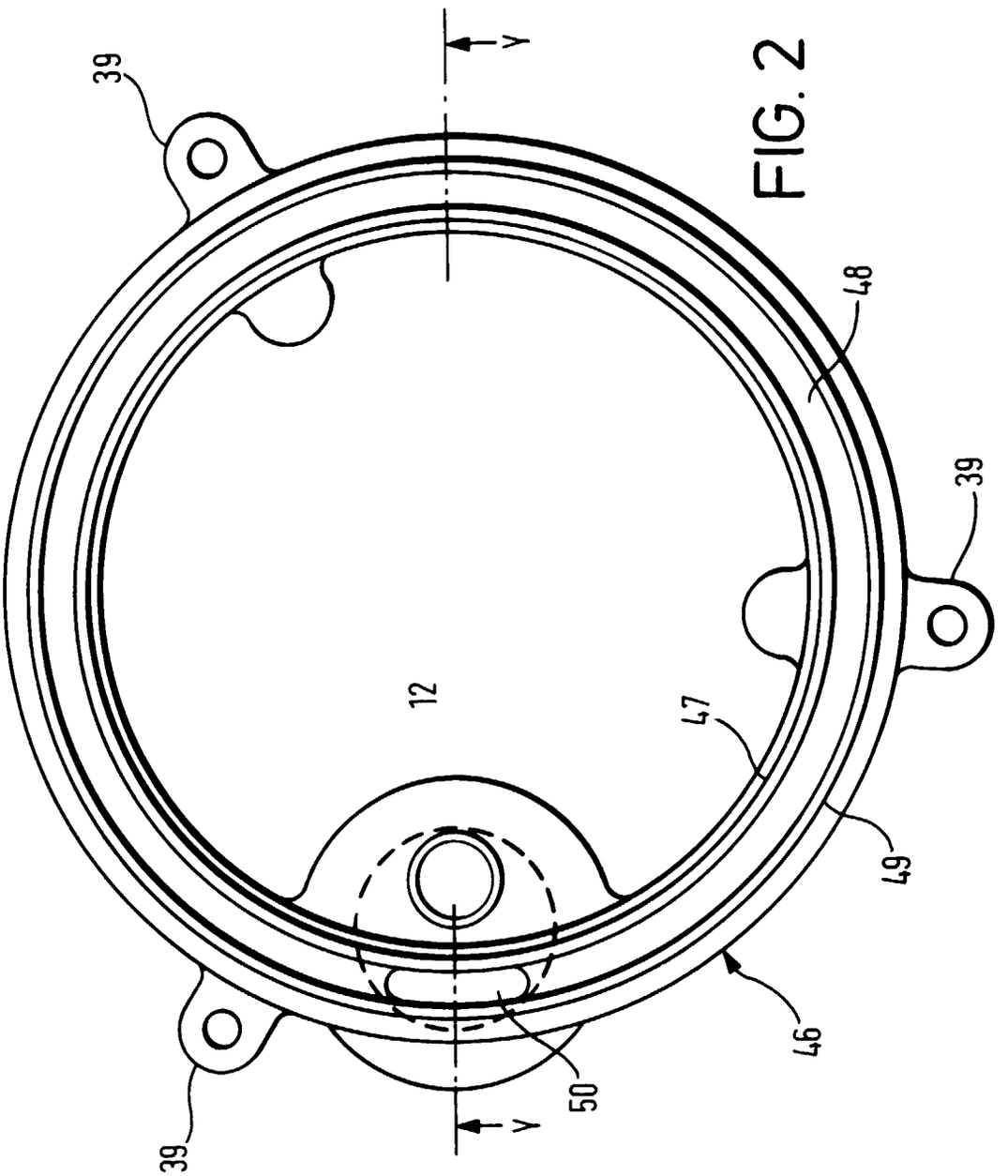

FIG. 2