

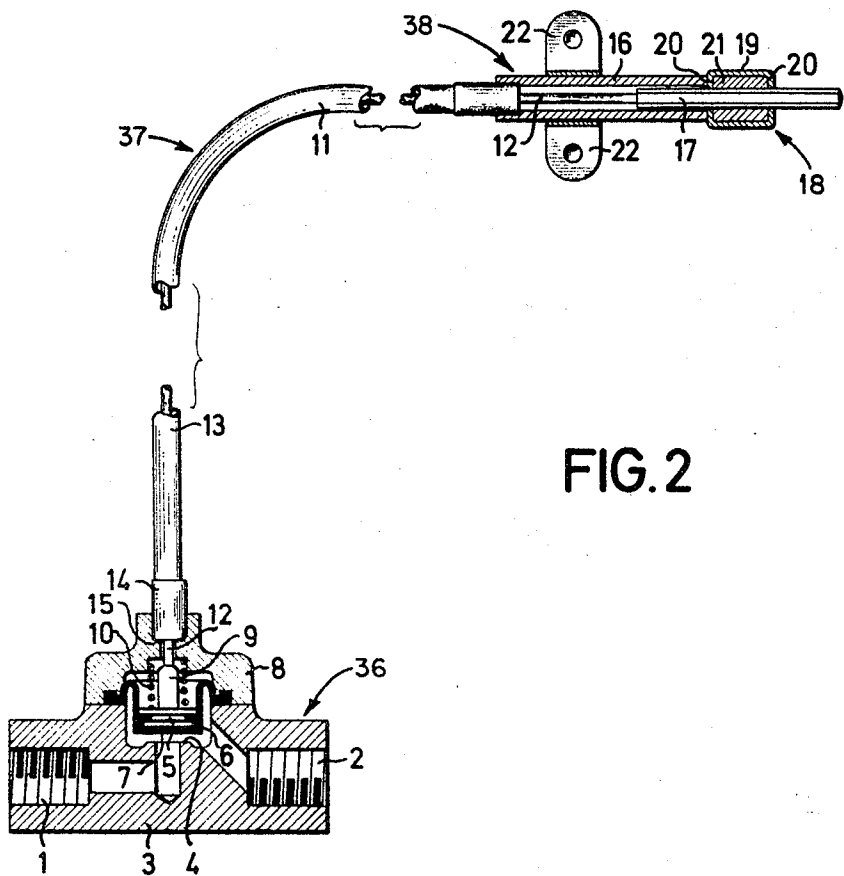
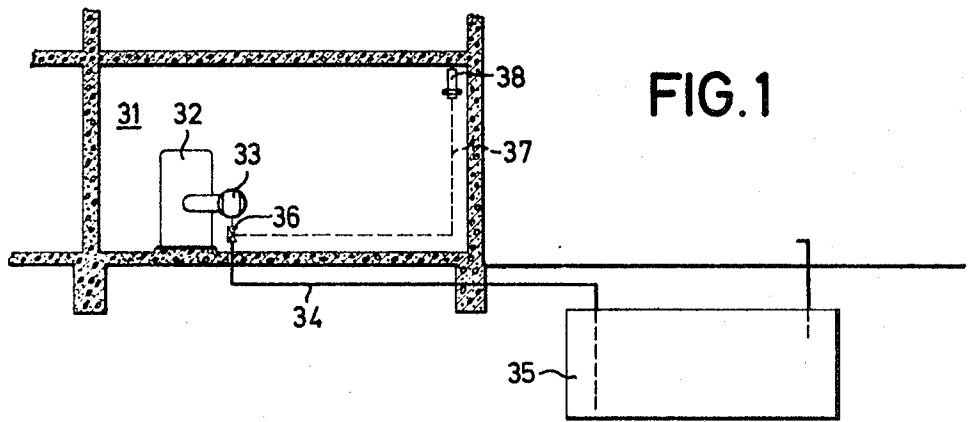
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FIRE VALVE FOR OIL BURNING INSTALLATIONS

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FIRE VALVE FOR OIL BURNING INSTALLATIONS

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2 Claims

ABSTRACT OF THE DISCLOSURE

A fire valve for oil burners comprising a spring-biased valve connected with a fusible link through a Bowden cable, and sheathing and the inner wire of said Bowden cable being interconnected by the fusible link to hold said valve in its open position.

Generally, oil burning installations require fitting of a safety valve in the pipe leading from the storage tank of the installation. Such valve must be adapted so as to automatically shut-off the pipe in the event of fire, the valve being controlled by a thermo-responsive element situated in a suitable position in the furnace room at a considerable level.

Since the oil pipe is normally situated at low level in the room, it is necessary to provide a safe connection between the thermo-responsive element and the valve. The simplest way of achieving this connection consists in providing the valve with a spring which tends to close the valve, and in keeping the valve open against the urge of the spring by means of a wire which connects to a fusible link in such a way as to be released when the fusible link melts so that the valve is closed by the tension of the spring.

Such structure is simple and cheap and does not require much inspection but it has the drawback that the fusible link must be provided exactly in line with the valve spindle or, if this is impracticable, that provision must be made for suitable pulleys or other guides for the wire to enable the latter to change direction.

This invention has for its object to provide a structure which likewise comprises a fusible link and wire tension but which does not need pulleys but nevertheless leaves sufficient freedom with respect to the mutual placing of the valve and the fusible link.

The invention consists in a fire valve for oil burners comprising a spring-biased valve, the valve spindle of which connects to a fusible link through a wire under tension to keep the valve open against the spring-bias until the fusible link has melted, characterised in that the valve is connected with the fusible link through a Bowden cable, the inner wire of said Bowden cable being connected with the valve spindle, and the sheathing of said Bowden cable being connected with the valve housing whilst the inner wire and the sheathing are interconnected through the fusible link at the opposite end of the cable.

The invention will be explained below with reference to the accompanying drawing.

FIG. 1 shows an arrangement of an oil-heated furnace with a fire valve.

FIG. 2 shows a side view of an embodiment of a fire valve according to the invention, partly in section.

In FIG. 1 is schematically shown a furnace room in which a furnace 32 is disposed. The furnace 32 is provided with an oil burner 33 supplied through a conduit 34 from an oil-tank 35. In the conduit 34 a spring-biased

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valve 36 is inserted, which is controlled through a connection 37 by a fusible link 38 placed at a rather high level in the room 31.

The safety valve with the fusible link is explained in the following with reference to FIG. 2.

1 and 2 designate the inlet socket and outlet socket, respectively, of the housing 3 of the valve proper. In the housing 3 a valve seat 4 is provided above which there is provided a valve member 5 surrounded by a cup-shaped member 6, the underside 7 of which can by means of the valve member 5 be pressed into firm engagement with the valve seat 4. The cup-shaped member 6 consists of rubber or other flexible material being resistant to oil. The edge of the cup-shaped member 6 is clamped between the valve housing 3 and a cover 8 through which extends a valve spindle 9 which is connected with the valve member 5.

The valve spindle 9 is surrounded by a helical spring 10 clamped between the valve member 5 and the cover 8.

A Bowden cable, generally designated by 11, is fitted in a bore in the cover 8 coaxially with the spindle 9. The inner wire 12 of the Bowden cable connects to the spindle 9, and the outer sheathing 13 is surrounded by a bushing 14 which engages a collar 15 in said bore in the cover 8.

At the opposite end the sheathing of the Bowden cable connects to a tubular bushing 16. The inner wire 12 extends into the bushing 16 and connects therein to a rod 17 which is displaceable in the bushing 16.

In the embodiment shown, the rod is threaded and provided with a correspondingly threaded nut, generally designated by 18. This nut 18 consists of a tubular jacket 19 with inwardly bent end-flanges 20 and a core 21 of an easily fusible material, for example an easily fusible metal alloy of the kind normally used in fusible links for fire protection.

This core 21 has an internal thread which fits into the thread of the rod 17.

The bushing 16 can by means of a fixing member 22 be fixed to a wall at suitable level. Next, the nut 18 is tightened by being screwed on the rod 17 against the bushing 16 until the valve is fully opened by the tension of the inner wire 12.

If the temperature raises to a non-permissible value so that the core 21 of easily fusible material in the nut 18 melts, the rod 17 can easily be displaced in the nut 18. The spring 10 in the valve is of a sufficiently heavy design to cause the rod 17 to be so displaced and entirely close the valve. The flanges 20 of the jacket 19 of the nut are spaced from the rod 17 so that they cannot prevent its movement.

It will be understood that the invention is not restricted to the embodiment shown. The valve can, by way of example, be designed in many different ways, the essential feature being only that it is so adapted as to close by means of a spring and open if subjected to a tension against the urge of the spring.

The connection between the inner wire of the Bowden cable and the outer sheathing thereof through a fusible link can likewise be brought about in many different ways. Thus, a thread is not necessary in that the connection between the fusible material and the rod may be brought about by other irregularities in the surface of the rod which prevent displacement when the material is solid but permit displacement when the material melts. The fusible link may also be shaped as a loose bushing of an appropriate length inserted on the rod and clamped against the bushing by means of a nut screwed on the rod or by means of a pin or the like.

Further, the fusible link can in the form of a corresponding nut of greater diameter be screwed on an ex-

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ternal thread on the bushing with engagement against a pin on the rod or a nut screwed thereon.

What is claimed is:

1. A fire valve for a housing enclosing a fuel line comprising a spring-biased valve, said valve having a valve spindle which connects to a fusible link tensioned to keep the valve open against the spring bias until the fusible link melts, the fusible link being located remote from said valve with a Bowden cable having an inner wire and an outer sheathing connecting said link to said valve; said fusible link being made of a fusible material shaped to form at least part of a threaded nut presenting a threaded portion therefrom, said fusible material being supported within a jacket; the outer sheathing of said Bowden cable being connected to the housing of said valve and rotatably engaging jacket, the inner wire of said Bowden cable being connected on one end to said valve spindle and the other end having threads which engage the threads of

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said fusible material whereby said spring-biased-valve is held in its open position solely by the engagement of said threaded portions.

2. The fire valve of claim 1 wherein said jacket is tubular and has inwardly bent end flanges.

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