

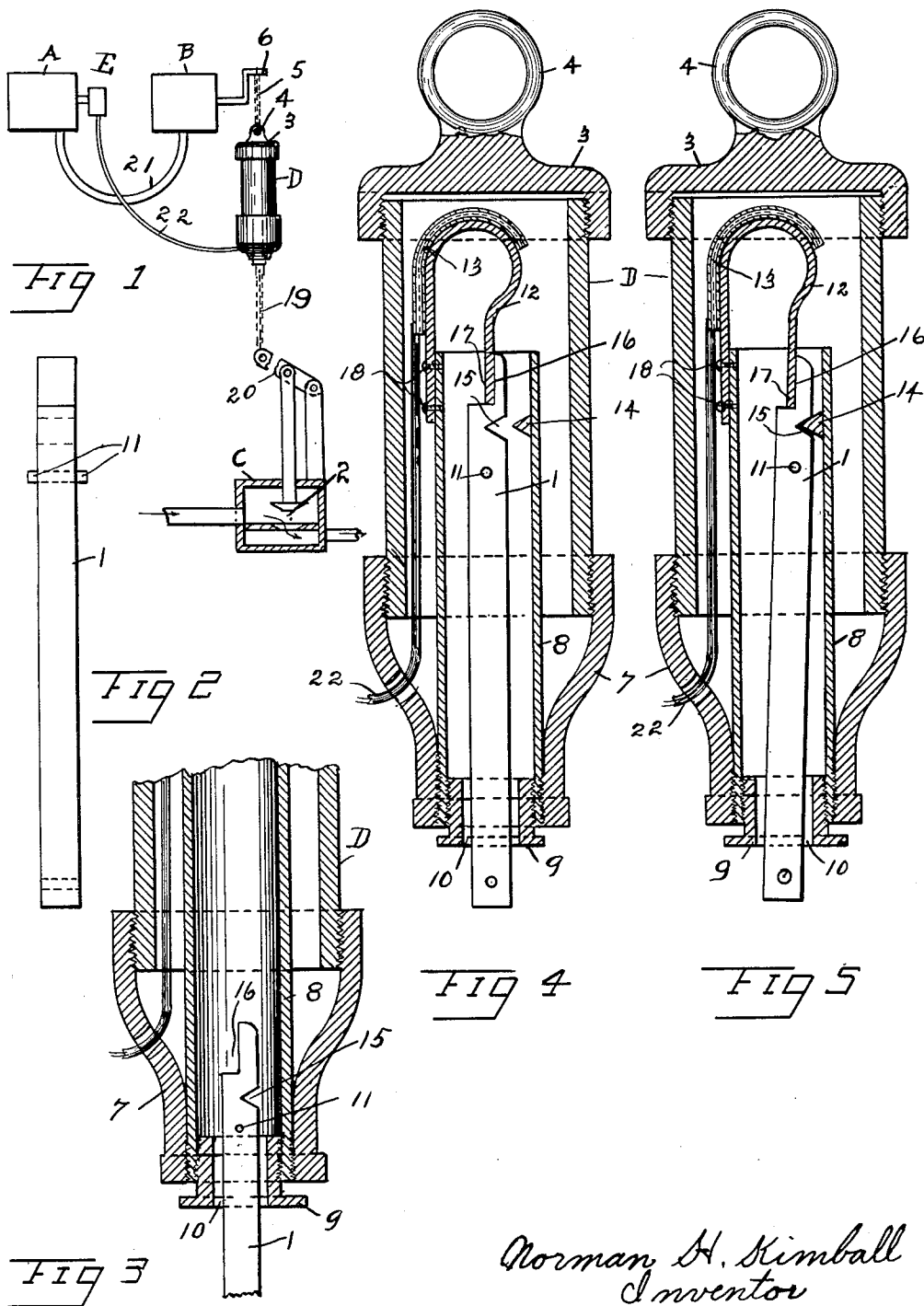
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ELECTRICALLY HEATED THERMAL LATCH

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ELECTRICALLY HEATED THERMAL LATCH

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2 Claims. (Cl. 74—2)

This invention relates to an electrically heated thermal latch or safety device.

One of its objects is to provide a safety device to be placed between a control motor and a fuel valve and connected thereto, for use on gas or oil burning furnaces.

Another object of this invention is to provide an electrically heated thermal latch or safety device that will automatically disconnect the valve control motor from the valve controlling the flow of fuel to the furnace if electric current to the control motor is broken in any manner.

It is customary with gas or oil burning furnaces to have a thermostatic control apparatus to control the heat of the furnace to control the opening and closing of a fuel supply valve. If the electric current is broken to the apparatus in any manner it stops working. If it should stop when the valve was open, the valve would remain open as it is connected to the control motor this would allow fuel to flow into the furnace with serious results. There have been cases where this has occurred where the boiler and furnace were completely ruined and some times the building set afire as well.

With my invention attached to the control motor and fuel supply valve the above would never have happened for as soon as the electric current was broken the yoke would begin to cool and move away from the latch bar which will allow the latch bar to move away from its catch and fall to its lowest position, thus the control motor and fuel valve are disconnected which allows the valve to close and stops the flow of fuel to the furnace.

As soon as the pull is removed from the valve it closes in its usual manner.

With these and other objects in view my invention consists of the following construction of its parts to be hereinafter described and claimed.

In the accompanying drawing forming a part of this specification and in which corresponding parts are denoted by like reference characters is illustrated the preferred form of embodiment of the invention capable of carrying the same into practical use, it being understood that the invention is not necessarily limited thereto, as various changes in its shape and proportions and general assemblage of its parts may be resorted to without departing from the principles of the invention, and the right is therefor reserved to make all changes and modifications which will fall within the scope of the invention.

Referring to the drawing:

Figure 1 is a view showing a part of a con-

trolling apparatus of a furnace with my invention attached thereto.

Fig. 2 is a side view of the latch bar 1.

Fig. 3 is a fragmentary section view showing the latch bar in its lowest position.

Fig. 4 is a vertical section view showing the latch bar in its upper disconnected position.

Fig. 5 is a vertical section view showing the latch bar in its locked position.

The reference character A denoted the casing for an electric switch, B a control motor, C the casing for the fuel supply valve, D my invention, E a transformer for transforming the electric current to the heating unit.

The invention comprises a casing having a thread on each end thereof. The upper end has a cap 3 threaded thereon having an eye thereon to which is secured one end of a chain 5 the other end of the chain being attached to the crank of the control motor B.

Threaded onto the lower end of the casing is another cap 7 which has an aperture therein into which is threaded one end of a pipe 8 the other end of the pipe projecting into the casing.

Into the lower end of the pipe 8 is threaded a plug 9 which has an aperture therein, through which passes a latch bar 1. A pin passing through the latch bar forms lugs 11 which prevent the latch falling out of the casing when it is in its lower position.

The reference numeral 12 denotes an expandible yoke which is secured by one end to the upper end of the pipe 8 by rivets 18 or other means. Secured to the yoke 12 is a heating unit 13 which is controlled by an electric current passing through cable 22 from the transformer to the heating unit. When the electric current is passing through the heating unit it heats the yoke to expand it to move the latch bar to its locked position as shown in Fig. 5.

Placed within the pipe 8 near the upper end is a lug 14 over which the notch 15 in the latch bar engages when the latch bar is moved by the yoke 12 into its locked position.

The upper end of the latch bar has a projection thereon to which the free end of the yoke engages when said casing is lowered relative to said bar.

One end of a chain 19 is secured to the lower end of the latch bar 1 the other end of the chain being secured to the valve lever 20. The opening 2 of the control valve is controlled by the movement of the lever 20, thus when the control motor and the valve lever is connected by means of

my invention and the control motor is operated it will raise and lower the valve.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:

1. An electrically heated thermal latch comprising a casing having ends thereto, one of said ends having an eye thereon, the other end having an aperture therein, a pipe threaded into said aperture and extending into said casing, an expansible yoke having one end secured to the upper end of said pipe within said casing, a latch bar within said pipe and having a notch therein, said casing and bar being relatively movable, said pipe having a lug therein which notched latch bar may engage, said latch bar contracting the free end of said yoke when said casing is lowered relative to said bar, a heating unit secured to said yoke which when heated causes said yoke to move said latch bar to latch with said lug, means for supplying an electric current to said heating unit and means for preventing said latch bar from falling out of said casing.

2. An electrically heated thermal latch comprising a casing having ends thereto, one of said ends having an eye thereon to which a chain is attached to support said casing, the other end of said casing having an aperture therein, a pipe threaded into said aperture and extending into said casing, an expansible yoke having one end secured to the inner end of said pipe, a heating unit secured to said yoke, means for supplying an electric current to said heating unit, said pipe has a plug in the lower end thereof having an aperture therein, a latch bar passing through said aperture into said casing, said latch bar contracting the free end of said yoke when said casing is lowered relative to said bar, said heating unit when heated causes said yoke to move said latch bar to latch with a lug within said pipe and means to prevent said latch bar falling out of said casing.

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