

Oct. 20, 1936.

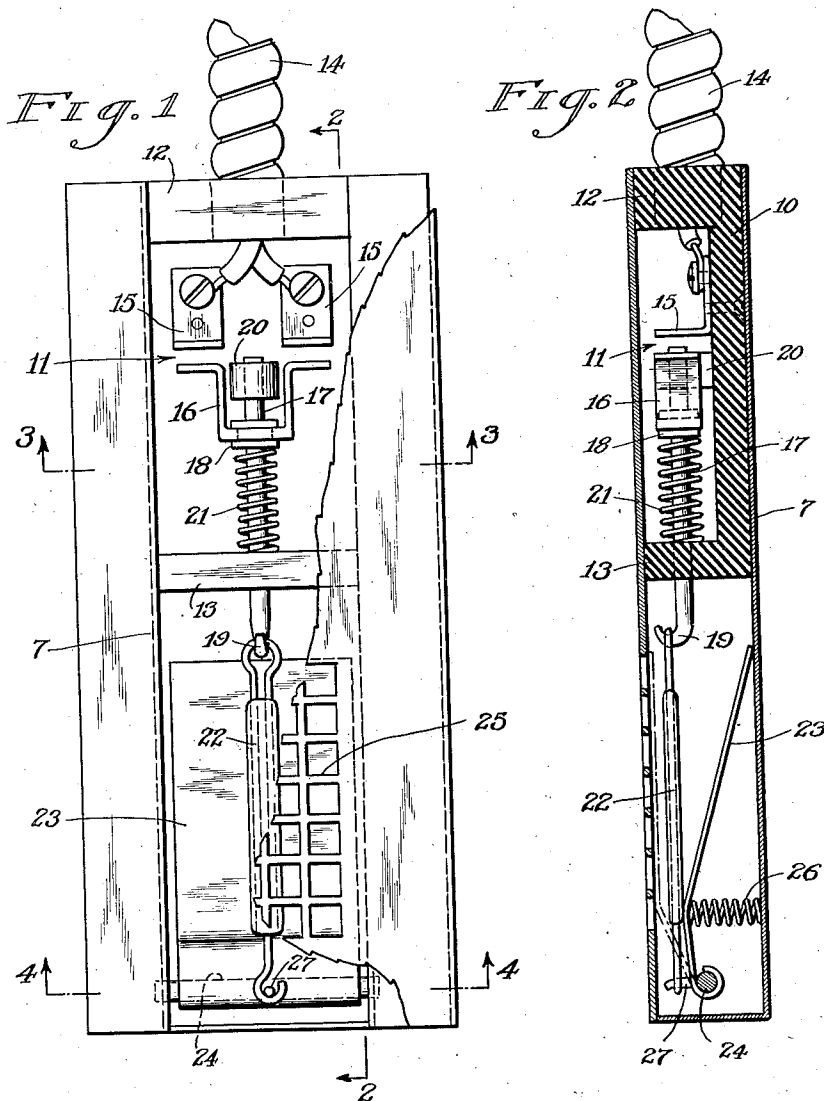
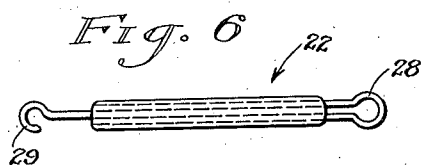
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2,058,288

FIRE DETECTING SIGNAL SYSTEM

Filed April 2, 1935

2 Sheets-Sheet 1



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Fig. 3

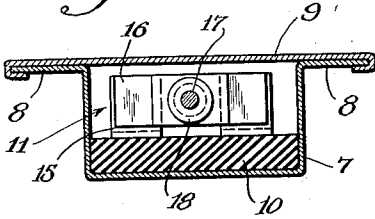


Fig. 4

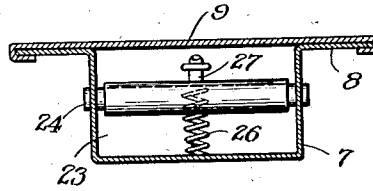
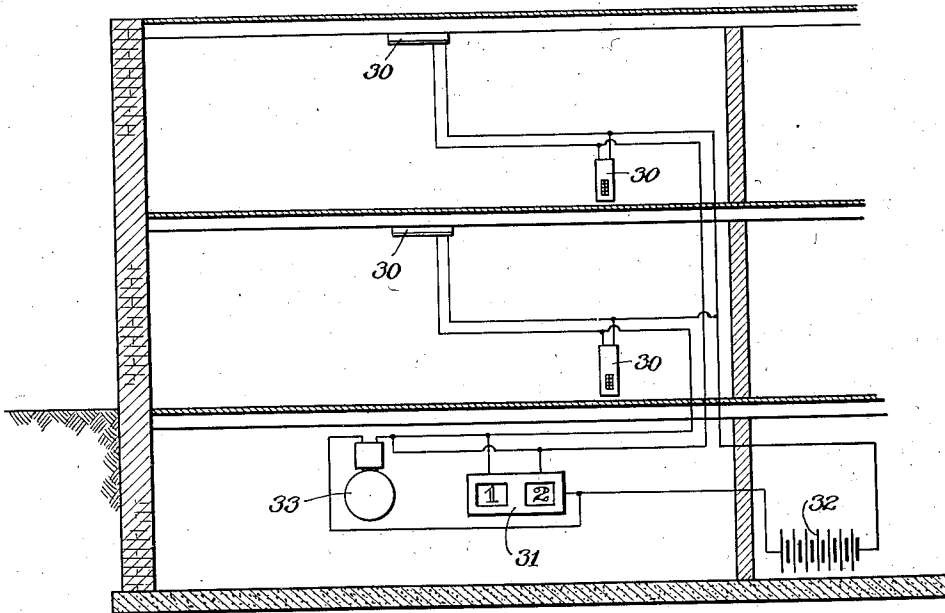


Fig. 5



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FIRE DETECTING SIGNAL SYSTEM

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Application April 2, 1935, Serial No. 14,334

2 Claims. (Cl. 200—142)

This invention relates to signal equipment for the detection of fires and more particularly to devices adapted to function when subjected to abnormally high temperatures to close an electric circuit by which a fire alarm is sounded.

It is the primary object of my invention to provide a fire detecting device adapted for servicing in conjunction with a fire alarm system, which device will operate to close an electric circuit when abnormal heat is applied to same, such as resulting from fire.

A further object is to provide in a device of this character a thermal sensitive member of simple and economical construction, the formation of which facilitates its replacement within a fire detecting device.

Another object of my invention is to provide a fire detecting device which, after it has functioned to send in an alarm will display a conspicuous signal indicating that the device requires resetting.

The invention will be fully and comprehensively understood from a consideration of the following detailed description when read in connection with the accompanying drawings which form part of the application, with the understanding, however, that the improvement is capable of extended application and is not confined to the exact showing of the drawings nor to the precise construction described and, therefore, such changes and modifications may be made therein as do not affect the spirit of the invention nor exceed the scope thereof as expressed in the appended claims.

In the drawings:

Fig. 1 is a front elevational view of my fire detecting device with the cover thereof partly broken away.

Fig. 2 is a longitudinal sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a transverse sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 1.

Fig. 5 is a schematic diagram illustrating a typical installation involving the use of my fire detecting device; and

Fig. 6 is a detail view of the thermal sensitive member apart from my device.

Referring to the drawings for a more detailed description thereof, the numeral 7 indicates a sheet metal casing of U-shaped cross-section having opposed longitudinal flanges 8 on each side thereof. A cover 9 is affixed to the casing 7 by having its longitudinal edges bent over on

themselves to slidably engage on the flanges 8. Into the upper end of the casing 7 is secured an insulating block 10, a portion of which is cut away to form a recess for the support and housing of an electric switch 11, thereby forming upstanding members 12 and 13. The member 12 is bored out to receive an electric cable 14, the conductor terminals of which are connected to the respective terminals of the switch 11. The switch 11 comprises angular contact members 15 which are supported on the block 10 and a contact bar 16 adapted to move into engagement with the members 15 to close the circuit. The contact bar 16 is mounted on the slide rod 17 and insulated therefrom by the bushing 18. The rod 17 extends thru the member 13, its projecting end being provided with a hook 19. The opposite end of the rod 17 is supported for sliding action in the bearing 20. A spring 21 surrounds the rod 17 and is so disposed as to urge the contact bar 16 into engagement with the contact members 15.

The portion of the casing 7 beyond the member 13 is provided for housing the thermal sensitive member or fusible link 22 and the signal means for indicating that the replacement of the link 22 is required. This signaling means comprises a signal plate 23 carried on a transverse shaft 24 so that the former may be swung into contact with the underside of the cover 9. The cover 9 at this area is perforated to form the grill 25 thru which the position of the signal plate 23 may be readily observed. A spring 26 bearing against the back of the casing 7 presses against the signal plate 23 to urge the latter against the cover 9. The shaft 24 is suitably journaled in the longitudinal sides of the casing 7 and has affixed to it a hooked pin 27 to project perpendicularly from same.

Reference is now directed to Fig. 6 showing a detailed view of the thermal sensitive member 22, sometimes known as a fusible link. The member 22 comprises a looped member 28, the projecting ends of which are disposed in parallelism with each other and a hooked member 29, the projecting portion of which is disposed between the parallel portions of the member 28. The projecting portions of the members 28 and 29 contact with each other and are soldered together, it being required however that the solder used be of a sufficiently low melting point to function as hereinafter described. In use the ends of the member 22 are respectively engaged on the hook 19 and the pin 27, as shown in Fig. 2. With the member 22 thus installed, the signal plate 23 will be held in its rearmost posi-

tion against the pressure of spring 26, and the contact bar 16 will be held apart from the contacts 15 against the pressure of the spring 21.

At the occurrence of a fire the fusible link 22 will be subjected to a temperature sufficient to cause the solder thereof to melt, thus permitting the component parts 28 and 29 to separate from each other. In this fashion the hook 19 is released so that the spring 21 moves the contact bar 16 into contact with the members 15, thus closing the fire signal circuit. Simultaneous with this action the spring 26 moves the signal plate 23 into position against the grill 25 in that the pin 27 has been released.

Reference is now directed to Fig. 5 illustrating a typical installation of a fire alarm system incorporating my fire detecting device indicated by numeral 30. The fire detecting devices 30 may be installed in any desired number and are to be located for example on the ceiling or near the floor so as to be most vulnerable to the effects of the abnormal temperature resulting from a fire. The various units 30 in a single room may be electrically connected in parallel with each other, the conductors from same being extended to the basement of the building. In an appropriate part of the building, preferably the basement, an annunciator 31 and a fire alarm bell 33 are installed. The fire alarm signal circuit receives its current from a battery 32 or other suitable source. The interconnecting wires are so arranged that when a fire occurs in any part of the

building the alarm bell 32 will be sounded and the location of the fire will be indicated on the annunciator 31.

What is claimed as new is:

1. A fire detecting device comprising a pair of contactors, a switch, a fusible link normally holding said switch open with respect to said contacts, a spring attached to said link and adapted to close said switch when said link fuses, a signal plate pivotally mounted at one end and normally held out of view by said link, a spring for moving said signal plate to a visible position when the link fuses, a casing enclosing the mentioned mechanism and having a window, said signal plate normally extending to the rear of said casing away from said window and behind said link.

2. A fire detecting device comprising a pair of contactors, a switch, a fusible link normally holding said switch open with respect to said contacts, a spring adapted to close said switch when said link fuses, a signal plate pivotally mounted at one end and normally held out of view by said link, a spring for moving said signal plate to a visible position when the link fuses, a casing enclosing the mentioned mechanism and having a window, said signal plate normally extending to the rear of said casing away from said window and behind said link, a pin to which one end of said link is secured and on which said signal plate is mounted, said signal plate being bent rearwardly away from said pin.

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