

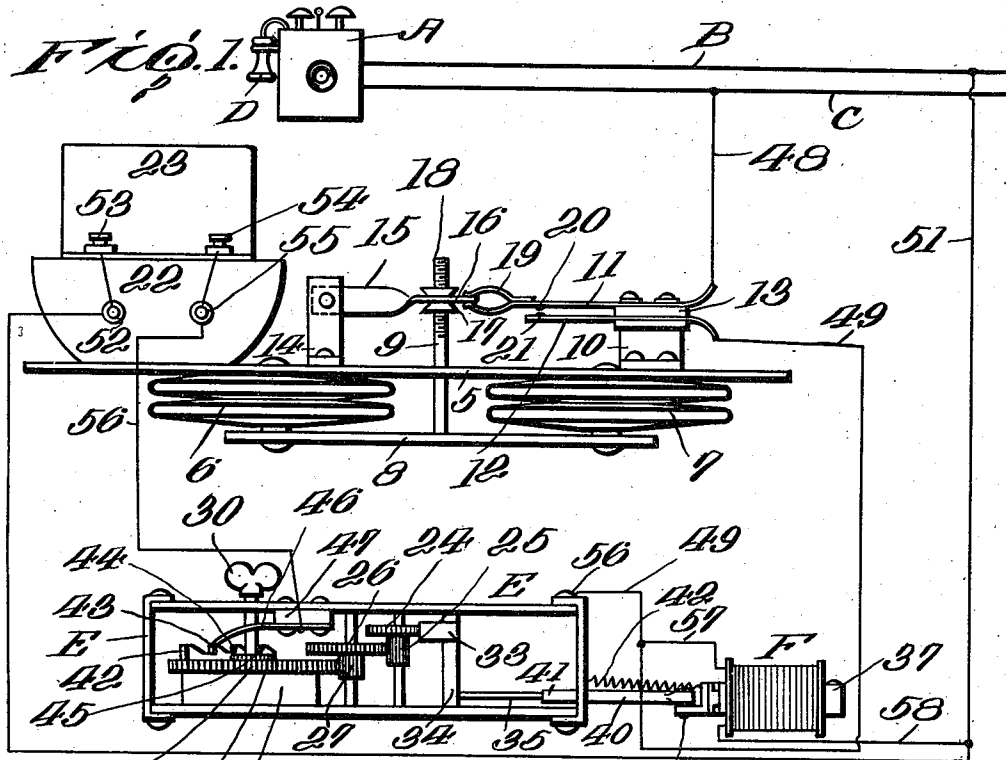
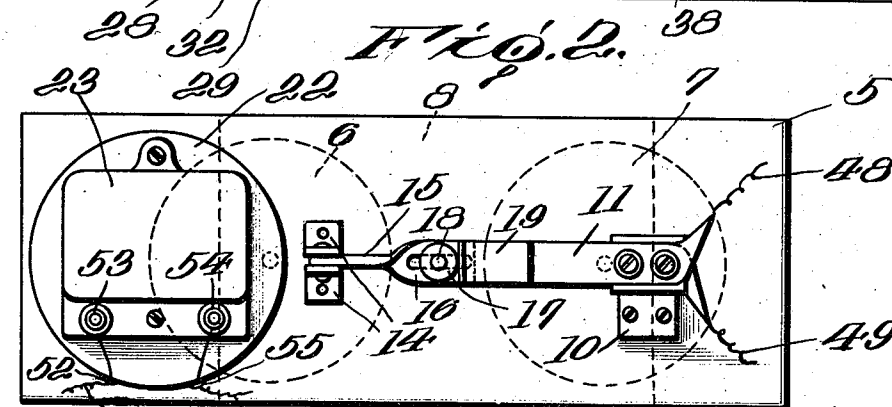
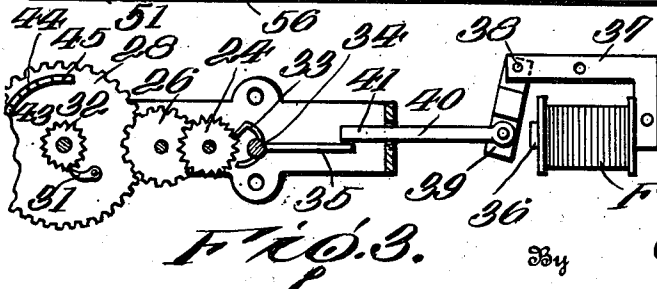
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AUTOMATIC FIRE ALARM SIGNAL SYSTEM

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AUTOMATIC FIRE-ALARM SIGNAL SYSTEM.

Application filed March 5, 1925. Serial No. 13,254.

This invention relates to improvements in automatic fire alarm signal systems being more particularly a thermostatically controlled fire alarm system designed for use in connection with the common form of telephone systems now in use throughout the country in both cities and rural districts.

One of the objects of the invention is the provision of an automatic fire alarm system which is capable of connection to an ordinary telephone system without affecting or lessening the utility of the telephone system.

Another object of the invention is the provision of an automatically controlled fire alarm system which is connected to and associated with the ordinary telephone system and which derives the current for transmitting the alarm from the telephone system.

Another and further object of the invention is the provision of a thermostatically controlled telephone system in combination with the ordinary telephone system which telephones rather than telegraphs the alarm.

A still further object of the invention is the provision of an automatic fire alarm system of the character described having a novel wiring circuit, a novel form of thermostat and electromagnet control and which embodies other novel features of construction which will be hereinafter more specifically described.

A still further object of the invention is the provision of an automatic fire alarm signal system having a simple wiring circuit and which is capable of attachment and association with the common form of telephone system.

Other novel features of construction, improved results and advantages of the invention appear in the following description and from the accompanying drawings.

In the drawings:

Figure 1 is a perspective diagrammatic view of the invention.

Fig. 2 is a top plan of the buzzer, transmitter and thermostat.

Fig. 3 is a detail view of the electromagnet and the clock working mechanism.

Referring now to the drawings in which like parts are designated by similar reference numerals throughout the description, A represents the ordinary form of telephone in common use and B and C designate tele-

phone wires leading from the telephone instrument to the main line (not shown) which eventually reach the telephone central office or station (not shown). As is common in respect to telephone systems the telephone station is signalled when the telephone receiver D is lifted from its hook which brings about the closing of the telephone circuit.

My improved fire alarm signal system comprises an entirety in itself and is capable of being connected to the telephone line wires B and C in the manner which will be hereinafter described.

Referring to the specific construction and parts which comprise my device it will be seen that there is provided a base plate 5 carrying on its lower side suitable thermostatic diaphragms or discs 6 and 7 in separated relation which are joined or spanned by a bar or plate 8. The bar or plate is centrally provided with an upwardly extending shaft or rod 9 which projects upwardly beyond the base 5.

At one end of the base 5 there is provided a suitable standard or bracket 10 carrying switch members 11 and 12 suitably insulated from one another by means of the insulation 13. At the opposite side of the rod 9 there is provided a suitable support or bracket 14 to which is pivotally supported a forked lever 15. The forked portion 16 of this lever engages an adjustment screw 17 carried upon the upper screw-threaded end 18 of the rod 9.

The upper switch member 11 is provided with a forked end 19 which is adapted to engage the end 11 of the forked rod 15 as clearly appears in Fig. 1 of the drawings.

The opposing faces of the switch members 11 and 12 are provided with suitable contact points 20 and 21 which are composed of a suitable non-corrosive metal.

There is also mounted upon the base 5 a transmitter 22 upon which is superimposed a buzzer or signal member 23.

In connection with my signal system I also use a clock mechanism which is mounted in a suitable frame E and comprises the gears 24, 25, 26, 27, and 28 all of which are driven through the medium of the spring 29 which is wound through the medium of a common form of key member 30 and held in its wound condition through the medium of a pawl 31 which engages the gear 32.

The clock mechanism is provided with an escapement 33 which is pivotally mounted as at 34 and provided with an outwardly extending rod portion 35.

5 Associated with the clock mechanism there is an electric magnet F which is provided, as is common, with a core 36. This magnet is provided with a bracket 37 which pivotally supports as at 38 a depending arm
10 39 in front of the core 36 and adapted to be actuated thereby. The arm 39 is further provided with an extending rod 40 the end of which is positioned to normally engage the escapement rod 35, as appears at 41 and
15 thereby prevent the operation of the escapement. To assure the normal engagement between these members I provide a suitable spring 42 which has its one end attached to the pivoted arm 39 while its other end is
20 attached to the frame E.

The gear 28 of the clock mechanism is provided with a series of upstanding lugs or dogs 42, 43, 44 and 45 which are adapted, upon occasion, to engage the end of the
25 downwardly extending contact spring member 46 which is suitably attached to and insulated from the frame E as appears at 47.

Referring to the wiring of the signal device and its connection with the telephone system it will be seen that a lead-off wire 48 from the telephone wire C
30 is connected to the upper switch member 11. A connecting wire 49 is provided between the lower switch member 12 and runs to and is grounded upon the frame
35 E as at 50. Another lead-off is taken from the telephone wire B and comprises a wire 51 which is connected to the transmitter as at 52 and from the transmitter to the buzzer as at 53. Passing through the
40 buzzer this wire leaves the buzzer terminal 54 and runs to the transmitter terminal 55 and from there is wired as at 56 to the spring switch member 46. Electrical connection for the magnet F is provided
45 through the medium of a lead-off wire 57 from the wire 49 and the wire 58 from the wire 51.

In installing the signal system in a building the parts will be practically hidden from sight. Preferably the plate 5 will be fitted
50 against the ceiling or wall of a room so that the thermostatic members 6 and 7 and their connecting bar 8 will be the only parts visible. The clock mechanism and the electro-
55 magnet can be installed in any suitable and convenient place.

Preferably the device will be so adjusted that at 115° F. the thermostatic members 6 and 7 will act upon the bar 8 and rod 9 to draw the pivoted forked member 15 down-
60 wardly and thereby cause contact between the contact points 20 and 21 of the switch members 11 and 12. It will be understood
65 however that through the medium of the ad-

justable member 17 that the contact between the switch members 11 and 12 can be so adjusted as to occur at any desired temperature.

Operation.

If from the foregoing description the operation of the device has not been understood it will be seen that when the temperature reaches a sufficient degree to bring
75 about the contact of the switch members 11 and 12 by reason of the action of the thermostat that electric current from the telephone wire C will pass through the wire 48, the switch members 11 and 12 and into the
80 wire 49 and thence to the frame E. Electric current is constantly in the wire 51 which has connection with the telephone wire B.

It will now be seen that by reason of the connection of the wires 57 and 58 to the electric magnet the core 36 of the magnet will be energized and will draw the pivoted arm
85 39 and its extending shaft 40 out of engagement with the escape rod 35.

Immediately this takes place the escapement begins to operate and the gear 28 rotates. The rotation of the gear 28 brings the contact lugs or dogs 42 to 45 inclusive into
90 periodic engagement with the depending spring switch member 46. Immediately this takes place the circuit is completed between the ground on the frame E through the switch member 46, wire 56, transmitter and
95 buzzer.

It will now be seen that the buzzer will transmit through the transmitter 22 which is connected to telephone wires B and C to the central telephone office or station.

As has been previously described, when the circuit is closed between the telephone
105 wires B and C the central office is signalled. Immediately the switch members 11 and 12 contact the central telephone office is signalled because the circuit between the telephone wires is closed between the electro-
110 magnet and the wire 58 which is connected to the wire 51.

From this it will be seen that prior to the buzzing of the signal the telephone operator has been signalled that a call is coming in and will therefore receive the buzzes
115 as they periodically take place. It will be readily apparent that the lugs or dogs 42 to 45 inclusive can be so arranged and shaped as to bring about different lengths and different numbers of buzzes. It only remains
120 for each alarm apparatus to be listed at the telephone exchange so that the operator when she receives the alarm can notify the fire department.

From the foregoing it will be seen that I have provided an automatic fire alarm system which is capable of attachment to the ordinary telephone system and which automatically telephones the fire alarm to the
125 130

telephone operator at the telephone headquarters. It will be readily apparent that by the use of my system any number of alarms can be attached to a city or rural telephone system and thereby afford fire protection to a community. This can be brought about of course without impairing the use of the telephone system.

I wish it also to be understood that departures can be made in respect to the invention and its specific parts without departing from the spirit of the invention as heretofore described and as will be hereinafter claimed.

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

1. A fire-alarm system including an open telephone circuit, an open second circuit electrically connected with the telephone circuit, a transmitter, an alarm and a thermo-responsive device, the three latter being included in said second circuit, the thermo device adapted to close both said circuits, the alarm operating after the said transmitter whereby the transmitter first indicates a signal at the central station, after which the alarm is then transmitted to the said central station.

2. A fire-alarm system comprising an open telephone circuit, an open second circuit connected with the said telephone circuit, an alarm, a transmitter, a thermo-responsive device all three within the said second circuit, whereby the telephone and the said second circuit are both closed by the thermo-responsive device, and first a signal given at the central station that is followed up by an alarm at the central station.

In testimony whereof I hereunto affix my signature.

FELIX F. DENZLER.