Sept. 29, 1970 J. J. GOERNER 3,531,794

FALSE FIRE ALARM CONTROL

Filed April 26, 1968

Fig.1.

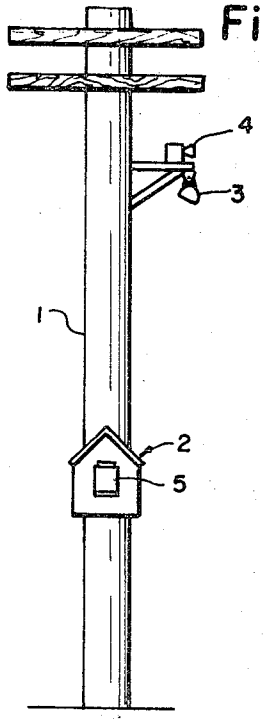


Fig.2.

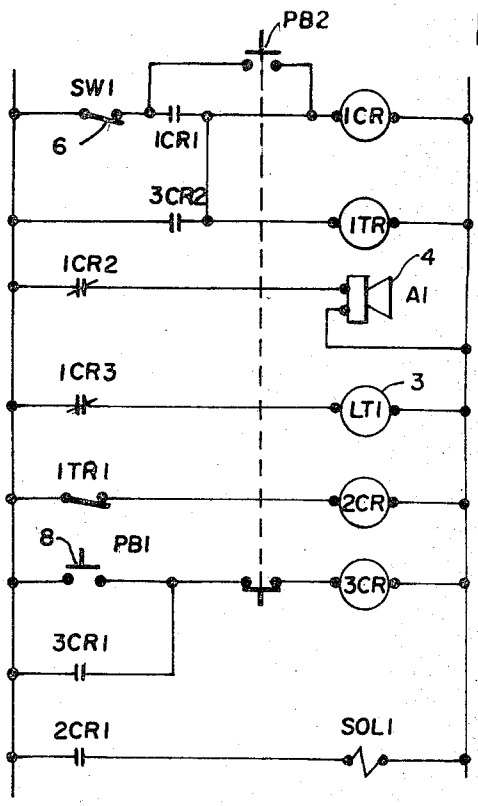


Fig.3.

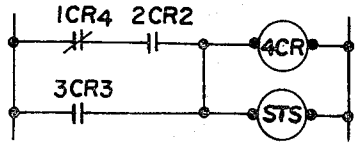


Fig.4.

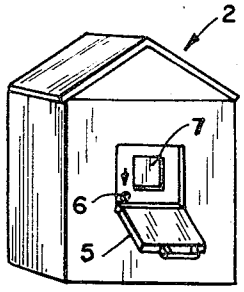


Fig.5.

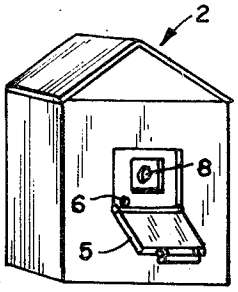


Fig.7.

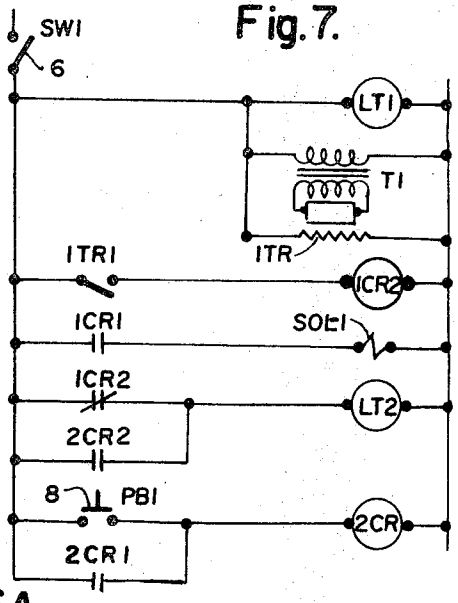


Fig.6.

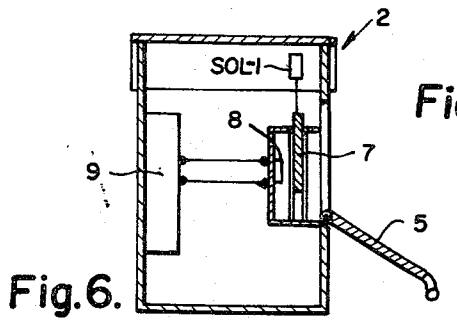
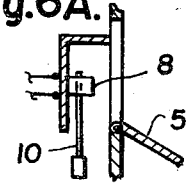


Fig.6A.



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FALSE FIRE ALARM CONTROL

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ABSTRACT OF THE DISCLOSURE

The invention relates to a control system for exposing the sender of a false fire alarm. It comprises a fire alarm box having a door, which, when opened, actuates a local alarm means to indicate the presence of the sender, and which opened door exposes to view a shutter which is normally held closed. A timer allows opening of the shutter only after lapse of a predetermined or preset time period to delay access to the fire alarm switch. The local alarm may be audible and a light to illuminate a sender and perhaps a camera to take his picture.

If the person is sincere in sending in the alarm, he will still be at the box to send the alarm to bring the apparatus to the scene. However, if he intends to send in a false alarm, he must wait for the time delay (which can be set to any amount of seconds) depending upon whether the alarm box is located at a heavy populated district or a sparsely populated district. With this time delay he will be exposed to the noisemaker and the well lighted area around the alarm box.

This invention relates to a system for detecting a false fire alarm.

In the past, considerable time and expense has been expended by fire departments in answering false fire alarms by pranksters, burglars, and the like. Such false fire alarms have recently increased to almost unbelievable numbers and have become a serious problem.

An object of the present invention is to solve the above-mentioned problem by exposing to view by persons nearby, a person that is in the process of sending an alarm to a central station.

A more specific object of the invention is to provide a temporary barrier to the alarm button which is removed only after predetermined time delay, during which the person attempting to send in an alarm is exposed to view by flood lights and by a siren or other noise making device.

Other objects and advantages will become more apparent from a study of the following description, taken with the accompanying drawing wherein:

FIG. 1 is an elevational view of a pole mounting a fire alarm box, a flood light and siren or other noise-makers;

FIGS. 2 and 3 show a control circuit embodying the present invention;

FIGS. 4 and 5 are perspective views showing the fire alarm box after the door is opened, FIG. 4 showing a shutter or gate for preventing access to the alarm button and FIG. 5 showing the shutter or gate removed and the button exposed for operation;

FIG. 6 is a vertical, cross-sectional view of the box shown in FIG. 4; and, FIG. 6A shows a modification; and

FIG. 7 is a modification of the control circuit.

Referring more particularly to FIG. 1 of the drawing, numeral 1 denotes a pole on which is mounted the fire alarm box 2 having a door 5 which must be opened to sound the alarm. Near the top of the pole are mounted a flood light 3 and a siren or other noise making device 4. As shown in FIG. 4, when the door 5 is opened, a switch 6 is actuated and a gate or shutter 7, which may be lifted by a solenoid SOL–1, prevents access to the alarm button

8 for actuating a circuit 9 shown more specifically in FIGS. 2 and 3.

The local alarm 4 that is, the one on the pole, may be a siren, a horn or bell or other noise producer, together with a floodlight 3 positioned above the fire alarm box, to alert nearby residents that the door of the fire alarm box has been opened. Solenoid SOL–1 lifts the gate or shutter 7 to expose the fire or call alarm button or switch 8 (PB1).

By my control system, I can (1) sound an alarm on the pole at the alarm box and light a floodlight at the same time while sending a primary signal (LT2) to the alarm room or central station upon first activating the door of the alarm box; (2) I can hold this action for a period of twenty seconds (or other desired period) at which time the signal to the alarm room or central station is interrupted and the call button or switch 8 is exposed by the action of the solenoid SOL–1; (3) upon the pressing of the button PB1 or switch 8, a second signal is sent to the alarm room or central station over the same pair of wires.

Upon opening of the small door 5 on the alarm box 2, switch 6 (SW1) is closed activating light 3 (LT1), the floodlight 3, the alarm 4 and starting the time delay cycle ITR, also through normally closed switch (ICR2) lighting (LT2) signal to the distant alarm room or central station.

When (AMPERITE ITR) timer times itself out (say in about 20 sec.) switch (ITR1) closes, activating (ICR) control relay. (ICR1) closes and (ICR2) opens. Therefore solenoid SOL–1 opens the gate or shutter 7 exposing (PB1) pushbutton and the signal to the alarm room or central station (LT2) goes off.

If the alarm sender presses the call button or switch 8 (PB1), (2CR2) control relay is activated and holds itself in through its own contact (2CR1). When this happens (2CR2) contact is also closed, lighting lamp (LT2) again which represents the alarm room or central station receiving the second signal.

If the alarm sender does not press the call button 8 (PB1) within a reasonable time, the alarm room or central station will know this is a false alarm.

In the alarm room or central station, a relay and step switch (for example) could be used to separate the first and second signals and to indicate which is presently operating. Also from this relay and step switch the alarm can be automatically taped out upon receiving the second signal.

As a modification of the invention, the gate or shutter may be opened by a solenoid SOL–1, located below instead of above shutter 7 so that if the circuit is broken, the shutter will fall by gravity. If this solenoid fails the alarm could not be sent in to the alarm room. I therefore devised a fail safe circuit.

My second circuit operates in this manner: Switch (SW1) is held closed by the alarm box door 5 being closed. This switch falls upon when the door is opened. When switch (SW1) is closed, it energizes (ICR) and (ITR) the timer. (ITR) is the type of a timer that begins its time cycle when it is deactivated for fail-safety.

Now when the door is opened, switch (SW1) opens, dropping (ICR) and (ITR). (ICRL) opens so that closing the door again cannot bring the circuit back to normal. (ICR) stays deenergized. At this time, the off time cycle (ITR) begins and (ICR2) and (ICR3) close setting off (A1), the local alarm on the pole, and (LT1) the floodlight on the pole. Also (1CR4) closes giving the alarm room or central station its first signal indicating the door on the alarm box has been opened.

When timer (ITR) times itself out, (ITRL) drops open, deactivating (2CR) relay. This time solenoid SOL-1 is holding in a latch which is locking the door or shut-

ter 7 in the front of the true alarm button 8 (PB1) and when the latch is released by being deenergized, the gate 7 falls away from button (PB1) by force of gravity. The reason is if anything fails, the alarm button or switch will be exposed anyhow to send in an alarm. When the gate or shutter 7 falls, (2CR2) also opens, stopping the first signal to the alarm room or central station.

Now if the person sending in the alarm presses button 8 (PB1) relay (2CR) pulls in and on holds its own contact (3CR1). (3CR2) closes, reactivating relay (1CR) putting out the local floodlight, also silencing the local alarm on the pole (A1) since continued noise would serve only to confuse. At the same time, switch (3CR3) closes the second signal to the alarm room or central station which tapes out the alarm, bringing the apparatus to the scene.

FIG. 3 shows how a circuit to the alarm room or central station also could be made to separate the first signal from the second signal by the use of a step switch for example, upon the first signal. The advance coil of a step switch (STS) could be energized with a relay coil (4CR). (4CR1) contact could pass current to the wiper of (STS) which is on position #1. This could then activate a small bell indicating that the box has been opened. Upon interruption of the first signal, the step switch (SWS) would step to position #2. The second signal would now pass through the same contact (4CR1) and the same wiper of (STS), but this time would pass through position #2 of (STS) and could start the alarm tape, sending apparatus to the scene of the alarm box. When the energizing is over, the alarm box is restored to normal and a key is inserted in the key switch (PB2) which is momentarily activated restoring (1CR) to activated position and (3CR) to deactivated position. The box is now ready for a new emergency.

Instead of or in addition to initially signalling a light LT1 or an alarm 4, a camera such as a still or TV camera A1 located at a strategci position may be actuated to take a picture of the person sending the alarm.

Also the alarm button could be used with a pin 10 (see FIG. 6A) through the center of it that would be pulled through a hole in the button to let the button be pushed in. This can be worked on the same principle as the shutter by the use of a solenoid. The pin would extend through the hole in the alarm button, thus making it impossible to push the alarm button in. After the prescribed time, the pin can be drawn out of the hole by the means of a solenoid, thus leaving the button free to be pushed in to send in the alarm.

Thus it will be seen that I have provided an efficient system for exposing a person to view while sending in a fire alarm so that he may be apprehended if the alarm is false, which system is harmless, inexpensive and effective; also I have provided a system which will act as a deterrent to the turning in of false alarms and to detect them sufficiently early as to prevent a needless run by fire apparatus which would be costly as well as endanger life and property.

While I have illustrated and described several modifications of my invention, it will be understood that these are by way of illustration only, and that various changes and modifications may be made within the contemplation of my invention and within the scope of the following claims.

I claim:

1. A control system for exposing the sender of a false fire alarm, comprising a fire alarm box having a door, a shutter within said box and which is exposed to view and is accessible upon opening of said door, an alarm switch normally blocked from view and from operation by said shutter, means normally closing said shutter, a timer for controlling said means to enable manual opening of said shutter only after lapse of a predetermined time period as preset by said timer to provide delayed exposure of said alarm switch for manual operation.

2. A control system as recited in claim 1 wherein a local alarm means is also actuated by opening of said door.

3. A control system as recited in claim 2 wherein a camera is actuated as the result of opening of said door so as to photograph the person sending in the alarm.

4. A control system as recited in claim 1 wherein said means comprises a relay which, when energized, holds said shutter closed and when de-energized, after expiration of said predetermined time delay period, permits opening of said shutter, and wherein said timer may be set for a period of about 20 seconds.

5. A control system as recited in claim 4 together with illuminating and signal means to illuminate the operator of said box and sound an alarm as the result of opening of said door.

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U.S. Cl. X.R.

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