G. H. INMAN.

FALSE ALARM DETECTOR FOR FIRE ALARM SYSTEMS.

APPLICATION FILED APR. 12, 1911.

1,018,564. Patented Feb. 27, 1912.

Fig. 1.

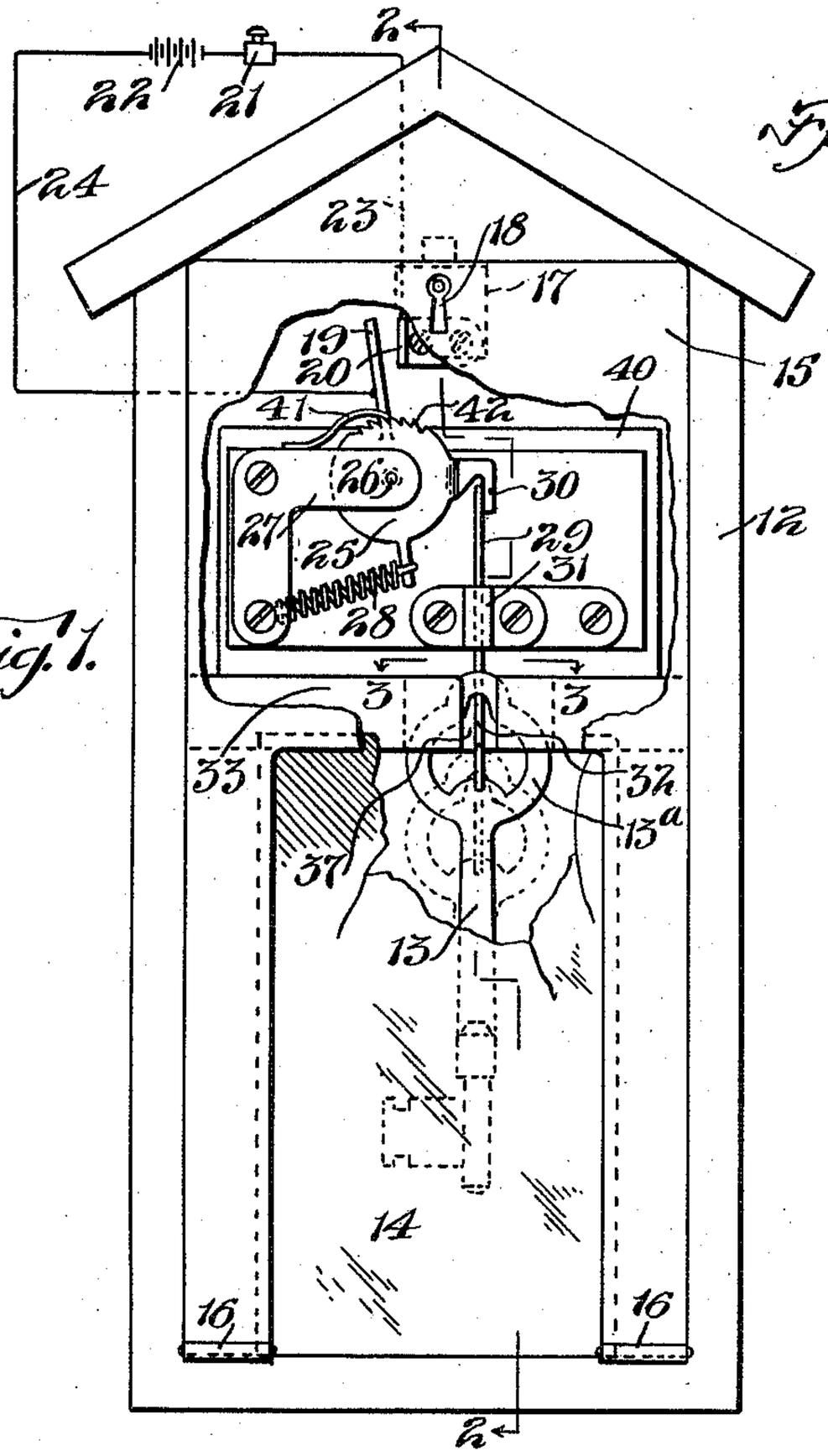


Fig. 2.

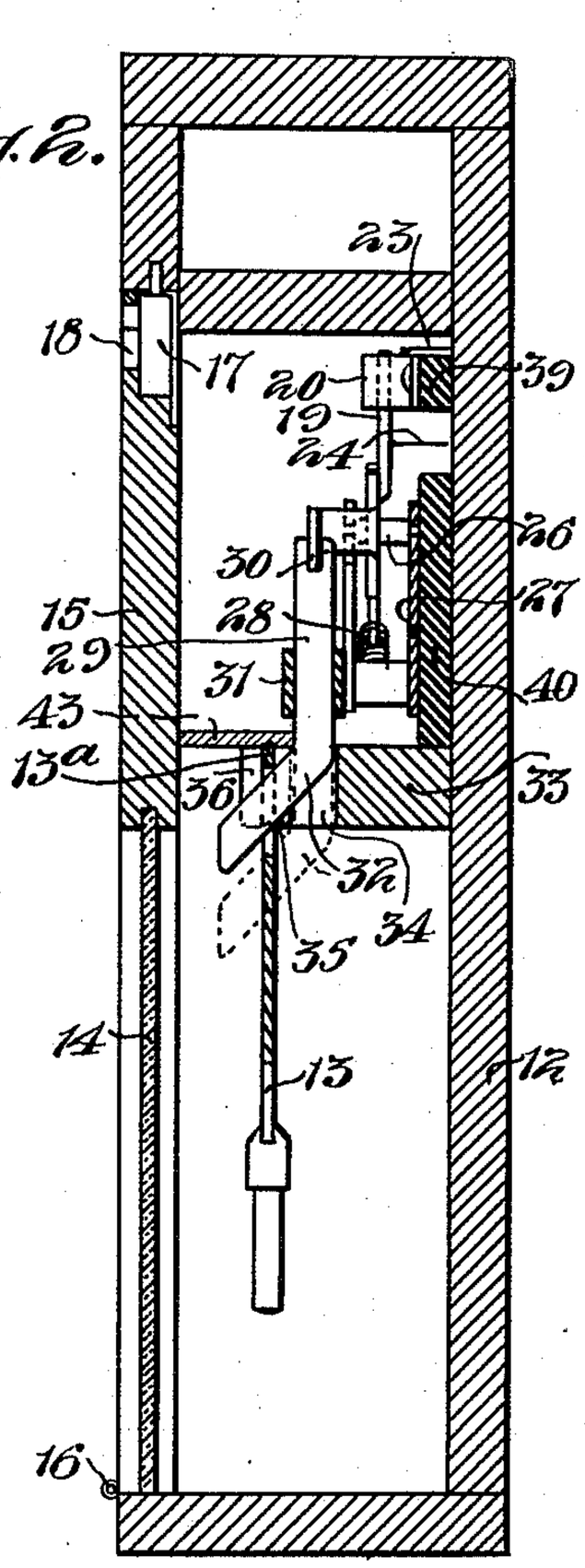
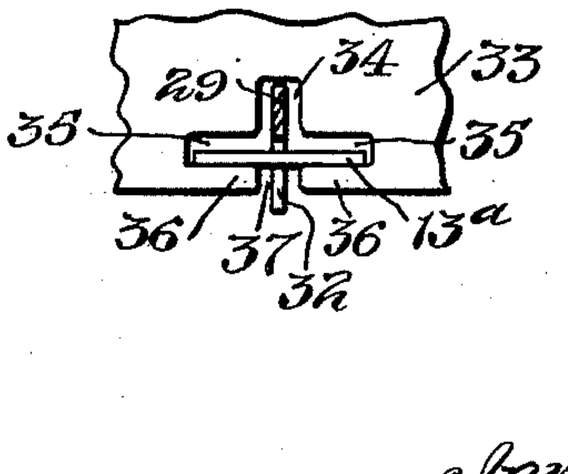


Fig. 4.

Fig. 3.



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FALSE-ALARM DETECTOR FOR FIRE-ALARM SYSTEMS.

1,018,564. Specification of Letters Patent. Patented Feb. 27, 1912.

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To all whom it may concern:

Be it known that I, GILBERT H. INMAN, a citizen of the United States, and a resident of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in False-Alarm Detectors for Fire-Alarm Systems, of which the following is a specification.

This invention relates to a holder or container for a key of a fire alarm box, the container usually having a glass plate which requires to be broken in order to obtain access to the key preparatory to operating an adjacent fire alarm signal box.

The object of the invention is to necessitate the giving of a local alarm in the vicinity of the key holder when the key is removed therefrom preparatory to giving the regular fire alarm, so that notice will be given whenever the key is removed from the container, this local alarm having the effect of deterring persons from giving a fire alarm when no occasion exists therefor.

The invention is embodied in a detector comprising a key container, circuit terminals therein included in a local circuit which may comprise an electric bell mounted on the pole or post which supports the key container and the regular fire alarm signal box, one of said terminals being a switch which is movable to close and break the circuit through the electric alarm, means for yieldingly holding the switch in its circuit-closing position, a movable detent adapted to lock the switch in its circuit-breaking position, said detent being adapted to engage a fire alarm box key, and means for preventing the removal of the key from the detent when the latter is in its switch-locking position, the detent being depressed from said position by the removal of the key from the container, so that the local alarm is sounded whenever the key is removed.

Of the accompanying drawings which form a part of this specification,—Figure 1 represents a front elevation of a key container embodying my invention, a portion of the door or front thereof being broken away; Fig. 2 represents a section on line 2—2 of Fig. 1; Fig. 3 represents a section on line 3—3 of Fig. 1 and a plan view of parts below said line; Fig. 4 represents a view similar to a portion of Fig. 1, showing the switch in its circuit-closing position, the key being removed.

Similar reference characters indicate the same or similar parts in all the figures.

In the drawings, 12 represents a box or container adapted to hold the key 13 of a fire alarm box, said container having a front opening covered by a pane of glass 14 which, when in place, prevents access to the key, the breakage and removal of the pane 14 permitting the key to be grasped and removed. The glass 14, as here shown, is inserted in grooves formed for its reception in a door 15 connected by hinges 16 with the container 12, the door being provided with a lock 17 whereby it may be held in closed position, and with a keyhole 18 permitting the application of a key to said lock.

The opening in the door 15 preferably extends through the lower end of the door so that the glass 14 may be inserted by an endwise movement through the lower end of the door, the glass resting on the bottom of the container when the door is closed, as shown by Fig. 2.

19 and 20 represent circuit terminals included in an electric circuit represented diagrammatically in Fig. 1, the circuit including a local alarm device 21 which may be an electric bell mounted on the pole or post (not shown) which supports the container 12. The circuit, as here shown, includes a battery 22 which may be located in the container or elsewhere, the circuit wiring including a wire 23 connected with the terminal 20 and a wire 24 connected with the terminal 19. If desired the local alarm 21 may be connected in circuit with the fire alarm wires instead of with a local battery.

The circuit terminal 19 is movable toward and from the terminal 20 and constitutes a switch whereby the circuit may be broken, as shown by Fig. 1, or closed, as shown by Fig. 4. As here shown, the movable terminal or switch 19 is attached to a hub 25 mounted on a shaft 26 which is journaled in bearings on a supporting frame 27 of any suitable construction, means such as a spring 28, being employed to yieldingly hold the switch 19 in contact with the terminal 20. The spring 28 is preferably connected at one end with an arm on the hub 25 and at the other end with a suitably fixed part of the supporting frame.

29 represents a detent which is adapted to lock the switch 19 in its circuit-breaking position, as shown by Fig. 1, said detent be-

ing movable into engagement with a hook 30 attached to the hub 25, and out of engagement with said hook, as shown by Fig. 4. The detent 29 is movable in a fixed guide 31, and has a frictional fit in said guide so that it is supported by the guide in either of the positions shown.

The arrangement of the described parts is such that when the detent is engaged with the hook it holds the switch 19 away from the terminal 20 against the force of the spring 28. When the detent is moved out of engagement with the hook the spring acts to press the switch against the terminal 20 and thus close the circuit.

The detent is formed to engage the key 13, said detent being provided with a hook 32 which is preferably inclined, as shown by Fig. 2, so that a downward pull on the key will exert a downward pressure on the hook 32 and the detent, and move the latter to the position shown by Fig. 4.

Means are provided for preventing the removal of the key from the detent when the latter is in its switch-locking position. As here shown, I have provided for this purpose a guard consisting of a shelf 33 rigidly attached to the interior of the container 12 and having a slot 34 in which the detent is movable and branch slots 35 extending laterally from the slot 34 and adapted to receive the eye 13ª on the shank of the key 13. The outer sides of the slots 35 constitute stops 36 which bear against the eye 13ª and prevent the removal of the key from the hook when the detent is in its switch-locking position. The guard 33 is preferably provided in its front edge with a slot 37 which separates the stops 36 from each other and receives the portion of the hook 32 when the detent is in its switch-locking position.

It will now be seen that when the detent is elevated, as shown by Figs. 1 and 2, to lock the switch, the key is confined by the guard so that it cannot be removed without depressing the switch, as indicated by dotted lines in Fig. 2. This depression is accomplished by a downward pull on the key the latter being freely removable from the hook 32 when the detent has been depressed sufficiently to release the hook 30. It is impossible therefore, to remove the key from its container without giving a local alarm calculated to draw attention to the fact that the container has been opened and the key removed.

My invention is not limited to the details of construction here shown and the same may be varied in several respects without departing from the spirit of the invention. For example, the door may be made in separate parts or sections adapted to be opened and closed independently instead of being made in a single part as here shown. The hinges of the door may be arranged in any suitable way to permit the opening of the door, either by a swinging movement on one of its ends or on one of its edges. In practice, the circuit wires may be conducted to the alarm through a tube mounted on the supporting pole or post to which the container is attached, the alarm 21 being located at an elevated point so that it cannot be tampered with. The circuit terminals 19 and 20 may be of any suitable form. The movable terminal or switch 19 may be constructed like a knife switch instead of having a single contact surface as here shown. Each of the said terminals may be composed of any suitable number of members. The terminal 20 may be insulated from the container by a base 39 of slate or other insulating material, and the frame 37 which supports the switch may be similarly insulated by a base 40.

To insure a protracted ringing of the alarm 21, the switch may be automatically locked in its circuit-closing position by a spring pawl 41 engaging one of a series of ratchet teeth 42 on the hub 25. The guard shelf 33 nearly closes the bottom of the space which contains the circuit terminals 19 and 20 so that it is not easy to insert a tampering device into said space for the purpose of separating the circuit terminals and causing the alarm to stop. It is desirable, however, to leave a narrow space between the outer edge of the shelf 33 and the door 15, as shown by Fig. 2. To prevent the introduction of a tampering device through this space a plate 43 may be provided, as shown by Fig. 2. If desired, a resistance coil may be included in the circuit in series with the switch. The container may be made of any suitable material, preferably cast iron.

I claim:—

1. A fire alarm key container, circuit terminals therein, one of said terminals being a switch which is movable to close and break an electric circuit, means for automatically moving the switch to its circuit-closing position, a movable detent adapted to lock the switch in its circuit-breaking position, said detent being adapted to engage a fire alarm key, and means for normally preventing the removal of the key from the detent when the latter is in its switch-locking position, the detent being displaceable from said position by the removal of the key.

2. A fire alarm key container, circuit terminals therein, one of said terminals being a switch which is movable to close and break an electric circuit, means for automatically moving the switch to its circuit-closing position, a movable detent adapted to lock the switch in its circuit-breaking position, said detent having a key-engaging hook, and a fixed guard within the box having means for confining the key on the hook when the detent is in its switch-locking position, the

hook being separable from said guard, and the detent movable from its switch-locking position, by the removal of the key.

3. A fire alarm container, circuit terminals therein, one of said terminals being a switch which is movable to close and break an electric circuit, means for automatically moving the switch to its circuit-closing position, a movable detent adapted to lock the switch in its circuit-breaking position, said detent having an inclined key-engaging hook and a fixed shelf within the container having a slot in which the detent is movable, said slot being provided with branches adapted to receive a portion of a fire alarm key and confine the key on the hook when the detent is in its switch-locking position.

4. A fire alarm key container, circuit terminals therein, one of said terminals being a switch which is movable to close and break an electric circuit, means for automatically moving the switch to its circuit-closing position, a movable detent adapted to lock the switch in its circuit-breaking position, said detent being adapted to engage a fire alarm key, means for preventing the removal of the key from the detent when the latter is in its switch-locking position, the detent being displaceable from said position by the removal of the key, and automatic means for locking the switch in its circuit-closing position.

In testimony whereof I have affixed my signature, in presence of two witnesses.

GILBERT H. INMAN.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."