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Agnese

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[54] **PORTABLE ALARM SYSTEM**

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[52] **U.S. Cl.** ..... **340/227.1,** 200/153 F

[51] **Int. Cl.** **G08b 17/02**

[58] **Field of Search** ..... 340/283, 227.1, 227; 200/153 F, 153 V

[56] **References Cited**

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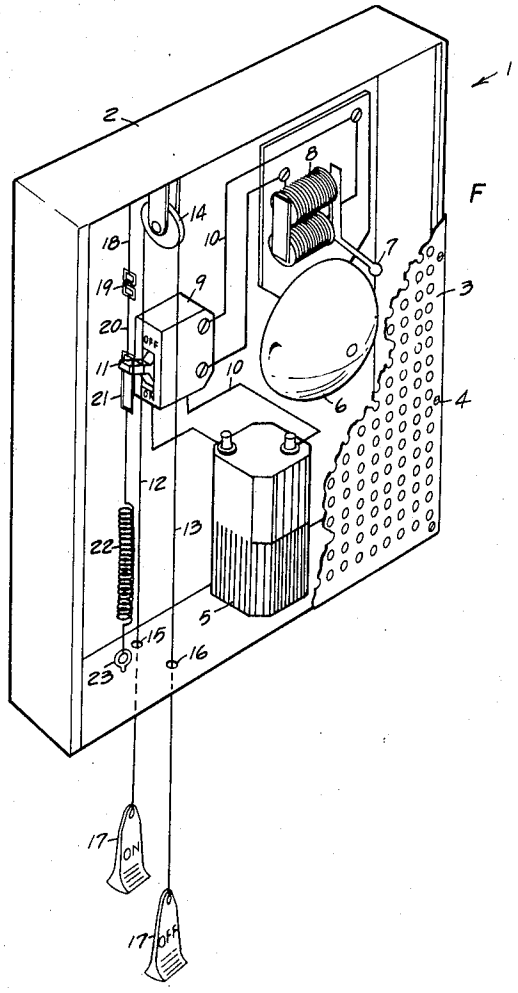
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[57] **ABSTRACT**

A multi-purpose, portable alarm system comprising an electrically-powered bell selectively controllable either manually or automatically by means of a fusible element responsive to heat. The alarm bell circuit is provided with on on-off switch which is controllable, in the manual mode, by means of two pull cords extending externally of the portable unit. In the automatic mode, the switch is controlled by a spring-loaded, lost-motion loop member, a portion of which is connected to a tensioned, fusible element which, when broken, allows the spring bias to force the switch to the "on" position. The system is conveniently housed in a cabinet which can be mounted upon a wall, or carried as a portable unit.

12 Claims, 3 Drawing Figures



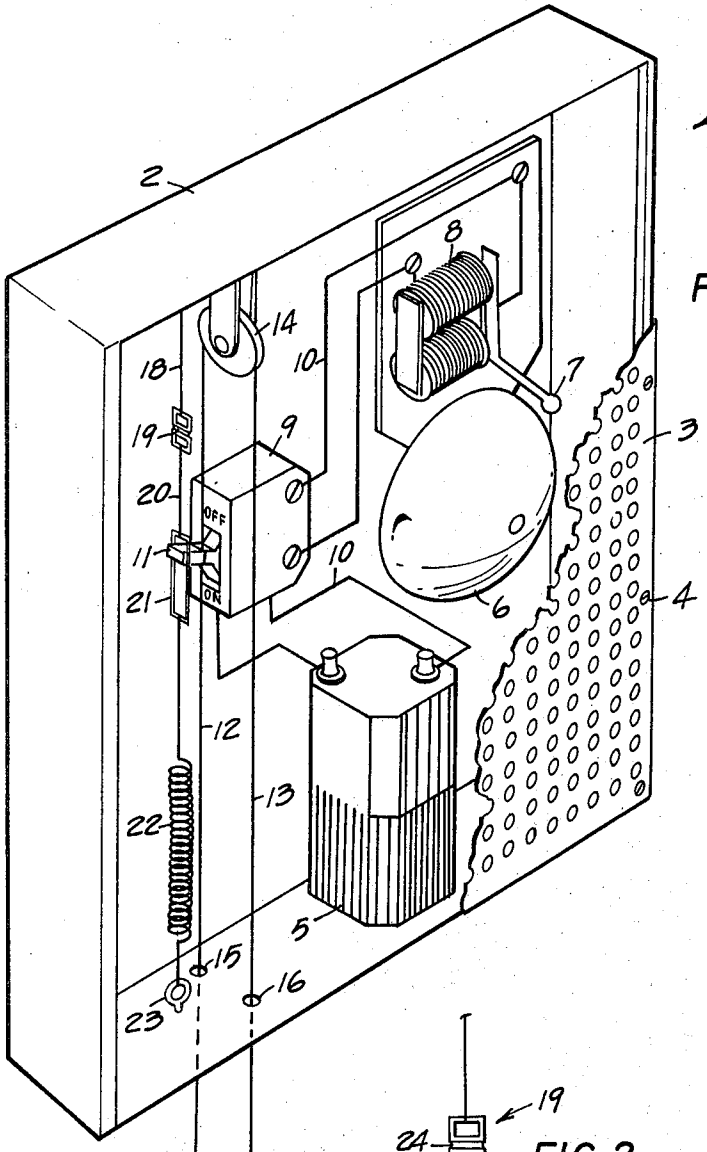


FIG. 1.

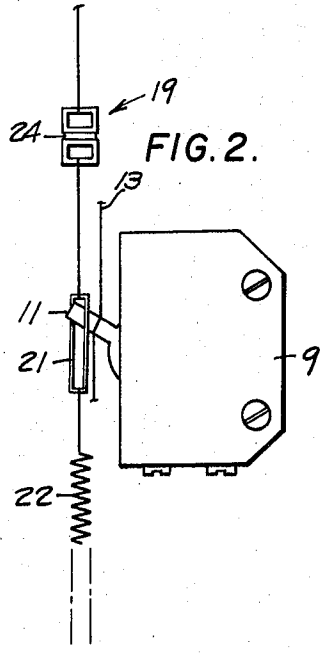


FIG. 2.

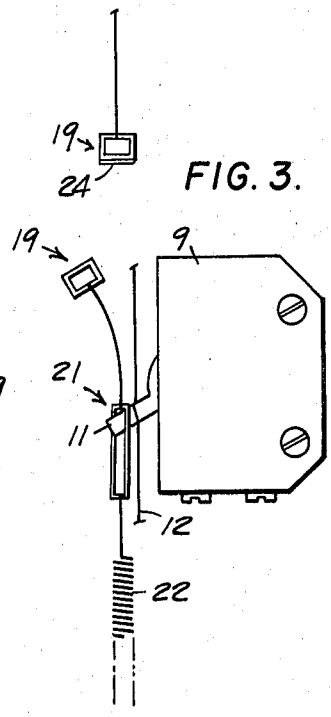


FIG. 3.

PORTABLE ALARM SYSTEM

BACKGROUND OF THE INVENTION

An efficient and economically-produced, multi-purpose alarm system has been long sought by the general public. In times of increasing threats of danger, alarm systems are needed to provide deterrence and summon help in the case of burglary and to provide warning and to actuate subsidiary systems, such as sprinklers, in the case of a fire.

In dealing with a burglary or personal threat, it is oftimes desirable to have available an alarm system which is manually actuatable and which can be selectively used by the threatened person to signal for help or to frighten the suspect away. Most extant burglar alarm systems do not provide this capability inasmuch as they are usually actuatable automatically in response to the opening of a door or the breakage of a window or the like.

Fire alarms, more specifically fire alarms coupled with sprinkler actuation systems, are usually automatic devices which respond to the attainment of a give predetermined temperature within an area to sound an alarm while simultaneously actuating a sprinkler system in the area. Such simultaneous actuation, however desirable to the event of a widespread fire, is undesirable if the fire treat is of a minor nature. This is so because the actuation of a sprinkling system within an area generally causes widespread water damage to the furnishings, art works, etc. therein and should be avoided where possible. In case of minor fire, the simultaneous actuation of the alarm and the sprinkler system would not allow one to extinguish an otherwise easily controllable fire before the sprinklers became operative.

Protean attempts have been made by others to solve the above-mentioned problems and to provide systems functional as both fire and burglar alarms. However, these attempts have generally been complicated and expensive to realize and have not provided complete solutions in and of themselves. Examples of such prior art systems are found in U.S. Pat. Nos. 724,917; 1,018,509; 2,013,466; 2,470,711; 2,673,975; 2,710,393; 3,312,968; 3,430,219; 3,475,744; and 3,641,571.

SUMMARY OF THE INVENTION

This invention relates to a multi-purpose alarm system comprising an electrically-powered alarm bell which is controlled by an on-off switch, which switch is actuatable manually or in an automatic mode. In the automatic mode the switch is tripped at a given, predetermined temperature by means of a spring-loaded fusible element which is destroyed upon the attainment of such predetermined temperature. In the manual mode, the switch is selectively tripped by means of simple hand manipulatable apparatus and this manual actuation is unaffected by the automatic mode apparatus due to the provision of a lost-motion loop member which allows the modes to be carried out independently. The alarm system is protectively enclosed within a portable cabinet and is adaptable for use in conjunction with subsidiary systems such as a room sprinkler which can be automatically actuated from the power supply of the instant alarm system, if desired.

The main object of the instant invention is to provide a multi-purpose alarm system which is inexpensively fabricatable from either conventional or easily-manufactured components and which is selectively actuatable by both automatic and manual means.

Other objects and advantages of this invention will become apparent from the following description and claims.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an isometric, schematic, partially cutaway view of the instant invention showing the major components thereof in their relative orientations;

FIG. 2 is an enlarged elevation of the actuator switch of the instant invention shown in the "off" position and showing the fusible element with its components intact; and

FIG. 3 is a view similar to FIG. 2 except that the switch is in the "on" position and the binding material of the fusible element has been destroyed and the components thereof separated.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The instant portable alarm system is shown generally at 1 in FIG. 1 of the drawing. A cabinet 2 is provided for protectively housing the various components of the invention. The cabinet can be conveniently constructed from wood, or plastic materials or the like, but is preferably constructed from metallic materials which are not subject to consumption during a fire. The cabinet is provided with a perforate cover or screen 3 which allows communication between the components and the ambient while affording some protection for the housed components. The cover is affixed to the cabinet by means of screws or like fasteners 4. Within the cabinet are housed a power source 5, which could be a battery, as shown, or an AC supply and transformer (not shown), an alarm bell 6 equipped with a conventional knocker 7 and coils 8. In series with the power source and bell, is an on-off switch 9 which is connected to the power source and bell by means of appropriate wiring 10. The switch, the alarm bell and the power source are conveniently fixed within the cabinet to prevent relative movement thereof. Upon downward actuation of the switch tang 11, as shown to the position marked "on" in FIG. 1, the alarm bell assembly will be connected to the power source and will ring until such time as the battery or other power source is dissipated. When displaced upwardly as shown in FIG. 1, the tang is in its "off" position and connection between the power source and the alarm bell through the wiring 10 is interrupted.

The modes of actuation of the switch 9 will now be discussed. Taking first the manual mode, two cords or wires 12 and 13 are provided to actuate the switch to the "on" or "off" position respectively. As can be seen in FIG. 1, both of the cords are attached directly to the tang 11 and the switch responds directly to the movement of either one. The cord 13 extends upwardly from the tang 11 and is looped over a pulley or roller arrangement 14 which is suspended by convenient means from the inner top portion of the cabinet 2. Both of the cords 12 and 13 extend through the floor of the cabinet at apertures 15 and 16 respectively and both are accessible from the exterior thereof. Attached to the end portions of each of the cords 12 and 13 is a gripping tab

or member 17 which serves the dual purpose of providing a gripping means which properly tensions the cord while also providing an indication of whether the particular cord pulled will actuate the switch to the "on" or the "off" position. The tab 17 might preferably be color coded in lieu of the provision of the "on" and "off" legends shown so that if an intruder gains access to the place in which the alarm system is housed, such intruder will not know immediately how to shut off the alarm and thereby disguise his presence.

The automatic actuation mode of the system is possible by virtue of a spring-loaded fusible element switch cocking mechanism. As shown in FIG. 1, a wire or cord 18 is fixed to and extends from the inner top portion of the cabinet 2 and is attached to the top portion or component of a fusible element 19 which element is shown more clearly in FIGS. 2 and 3. The fusible element is a simple composition of two pieces of material joined together by means of an easily fusible material such as solder 24 or the like, which will melt and lost structural integrity to allow the separation of the component parts of the element upon the attainment of a given predetermined temperature. Such fusible elements are commercially available and readily obtainable and are of the type generally used to trigger conventional sprinkler systems, such as those hereinbefore described.

Another length of wire 20 extends between the bottom part of the fusible element 19 and a lost-motion loop 21 which receives, internally therethrough, the tang 11 of the switch 9. The lost-motion loop and its function are readily appreciated by viewing FIGS. 2 and 3. Attached to the lower portion of the lost-motion loop 21 is a coil spring 22 which coil spring is attached to the cabinet floor by means of an eye 23 or the like.

The operation of the present invention will now be described. Assuming that the invention is being utilized in a building which is equipped with an automatic sprinkling system actuatable at a first predetermined temperature, for example 200°F, the fusible element 19 in the present system would then be selected to self-destruct and separate at a second predetermined temperature lower than the first, for example 160°F. Until such time as this second predetermined temperature was reached within the building, the switch actuating mechanism would be disposed in the "off" orientation shown in FIG. 2 with the fusible element intact and the lost-motion loop 21 out of contact with the tang 11. However, when said temperature was attained and the fusible element destroyed, downward movement of the coil spring 22 would occur and the top portion of the lost motion loop 21 would come into contact with the upper surface of the tang 11 and pull the tang downwardly to the "on" position shown in FIG. 3. As previously explained, this would complete the circuit between the power source and sound the alarm bell. As will be readily appreciated, if the alarm sounds upon the attainment of 160°F within the building, occupants will be alerted to the existence of a fire and will be able to take measures to put out the fire before the secondary system actuates the sprinklers upon the attainment of a temperature of 200°F to cause extensive water damage within the building.

When it is desired to turn the alarm system off, for instance when the fire has been extinguished or when the alarm has been manually applied in response to a personal threat and it is desired to discontinue the alarm, the manual system may be utilized. As will be readily appreciated, the manual system can be actuated at anytime, notwithstanding the disposition of the automatic fusible actuation apparatus. When it is desired to turn on the alarm system, for example when the presence of an intruder is sensed, one simply need grasp and pull the cord 12. This causes movement of the tang 11 downwardly within the lost-motion loop 21 to actuate the alarm bell. It should be noted that the lost-motion loop enables a downward or upward movement of the tang 11 without disturbing the positions of the fusible element 19, the wires 18 and 20 or the spring 22. When desired, the alarm may be turned off easily by grasping and pulling the cord 13 to move the tang 11 to the upward or "off" position, as previously described.

It should be apparent that the instant invention provides an inexpensive and extremely efficient multi-purpose alarm system which can be used either as a separate unit or in conjunction with a subsidiary system, such as a sprinkler, to provide adequate signals in the event of burglary or fire threats.

While the preferred embodiments of the instant invention have been specifically described herein, it should be apparent that other variations and modifications of the basic apparatus or of the components thereof are quite possible without need for departure from the spirit of the present invention or from the scope of the appended claims. For example, it would be possible to provide for ancillary automatic operation of the instant alarm system in response to window breakage or to the opening of a door or the like by suitably connecting the manual control cords 12 and 13 to such structures. Furthermore, the alarm bell of the instant invention could be disposed remotely from the cabinet, if desired, or such bell could be replaced or supplemented by non-audible means such as display lights or the like.

I claim:

1. A multi-purpose alarm system comprising; signal means for alerting persons to the presence of a danger, power means for actuating said signal means, control means for selectively permitting or prohibiting the actuation of said signal means by said power means, said control means including switch means interposed between said power means and said signal means, said control means having a switching member disposable in first and second positions for respectively permitting and prohibiting the actuation of said signal means, said control means also including manual means associated with said switching member for selectively manually disposing said switching member in either of said first or second positions, said control means further including automatic means for moving said switching member from said second to said first position in response to the attainment of a predetermined temperature, said automatic means including fusible element means for losing structural integrity upon the attainment of said predetermined temperature, said automatic means further including biasing means for forcing said switching member to move from said second position to said first position after said fusible element means has lost structural integrity and to remain in said second position until returned to said first position by said manual means, said system further including lost-motion means connected between said fusible element means and said biasing means and associated with said switching mem-

ber for engaging said switching member to move said member to said first position upon the attainment of said predetermined temperature.

2. The invention of claim **1** wherein said power means, said signal means and said control means, are mounted within portable cabinet means and wherein said cabinet means is at least partially perforate.

3. The invention of claim **1** wherein said signal means is an alarm bell.

4. The invention of claim **1** wherein said signal means is a visual display.

5. The invention of claim **1** wherein said lostmotion means includes a lost-motion loop member and wherein said switching member is disposed freely movable within said loop member to provide that said manual means are freely actuable to dispose said switching member in either of said first or second positions without causing movement of said loop member at all temperatures lower than said predetermined temperature.

6. The invention of claim **1** wherein said manual means include first and second chord members connected to said switching member and each movable respectively to dispose said switching member in said first or second position.

7. The invention of claim **6** wherein said manual means further include pulley means for engaging said second chord and changing the direction of forces transmitted therethrough.

8. The invention of claim **1** wherein said power means include a source of electric energy and electric circuitry connecting said source to said signal means.

9. The invention of claim **1** wherein said biasing means include a mechanical coil spring.

10. The invention of claim **2** wherein said cabinet means is a box structure having four imperforate sides, having one side imperforate except for first and second apertures and having one perforate side.

11. The invention of claim **10** wherein said manual means include first and second chord members connected to said switching member and each movable respectively to dispose said switch member in said first or second position, said first and second chord members extendings respectively through said first and second apertures to the exterior of said cabinet means.

12. The invention of claim **11** wherein said first and second chord members are each provided with a gripping tab member, each said tab member having indicia thereon for indicating whether each chord member is said first or second chord member.

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