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(54) Alarm system

(57) The invention relates to an alarm system comprising a light source (80) adapted to be mounted on an exterior wall of a building and for connection to initiating means adapted, when activated, to initiate the light source to give an alarm signal, the light source being embedded in and/or arranged to transmit light through a solid piece of strong plastics material (81) such that when mounted no wiring is accessible for disablement. Preferably the alarm system comprises an audio alarm (28) located within a secure container (12, 25), the container being adapted to be mounted on an exterior wall (15) of a building and to be connected to initiating means arranged, when activated, to initiate the alarm, and including a strobe light embedded in a sheet or block of plastics material secured to the exterior of the container such that if an attempt is made to dismount or disable the light the alarm is initiated.

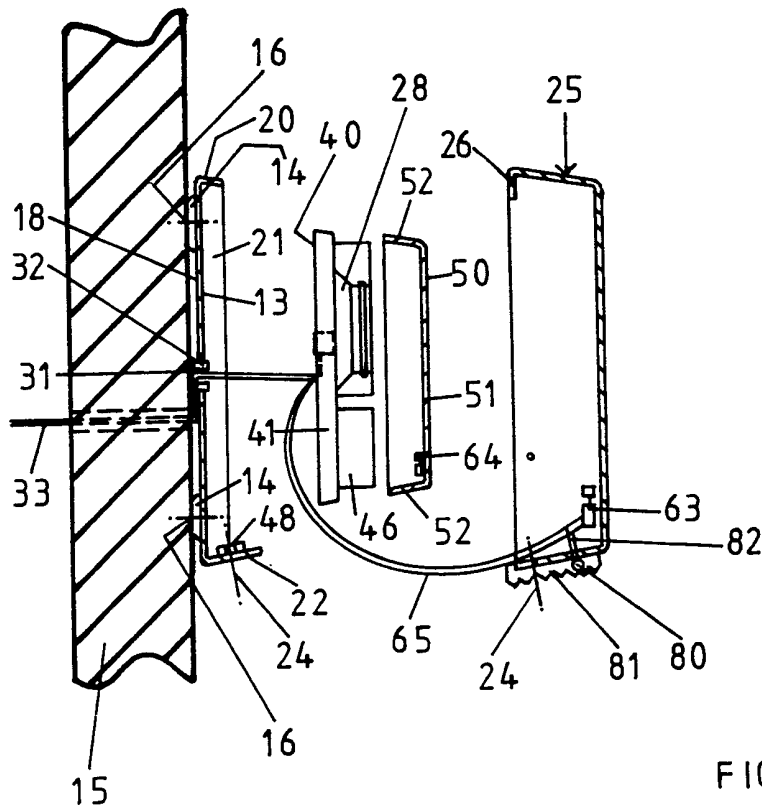


FIG. 1

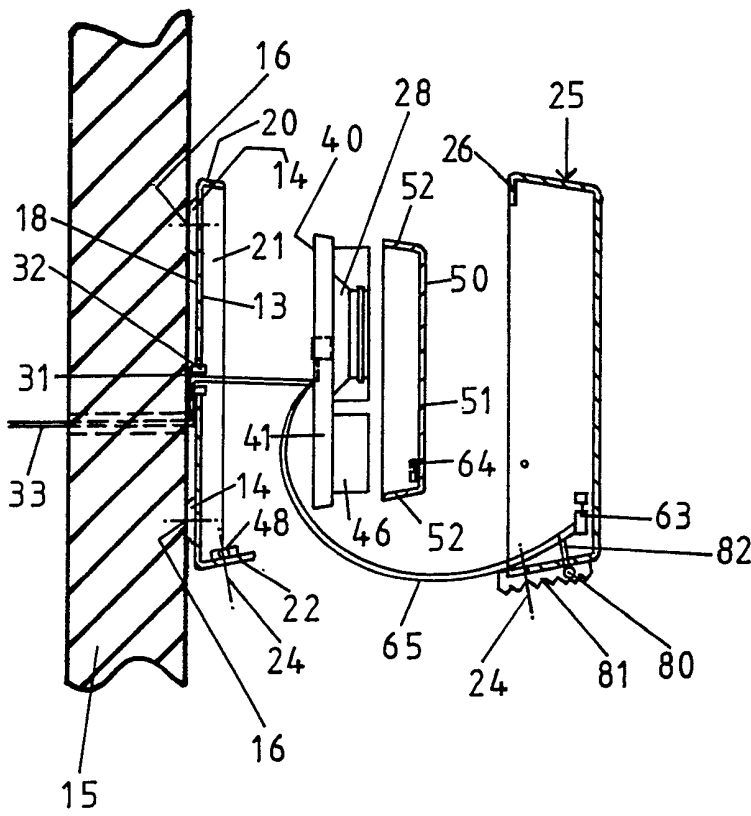


FIG. 1

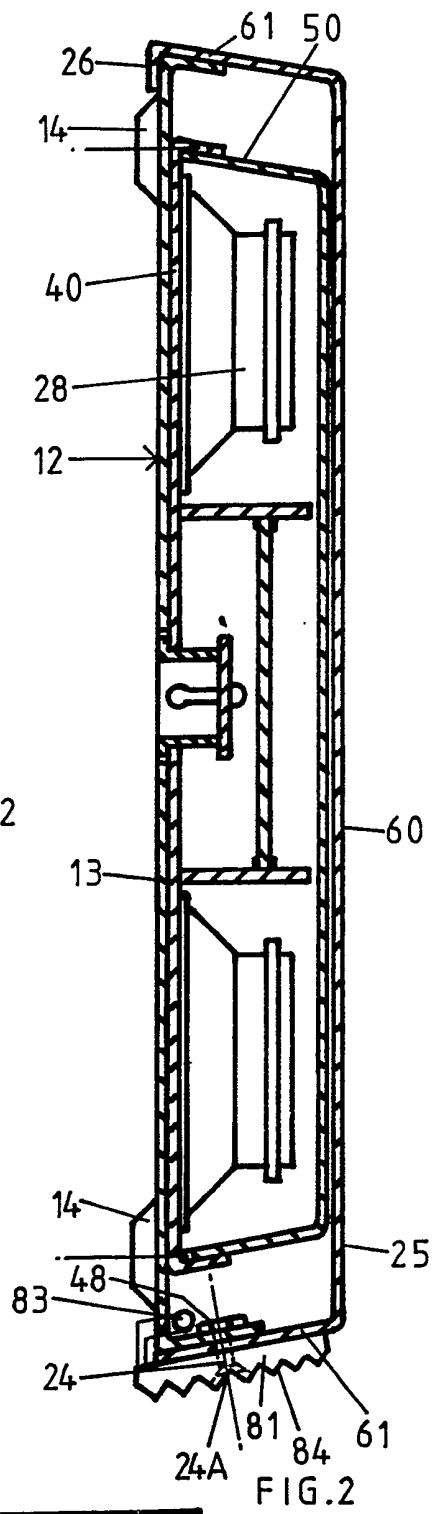


FIG. 2

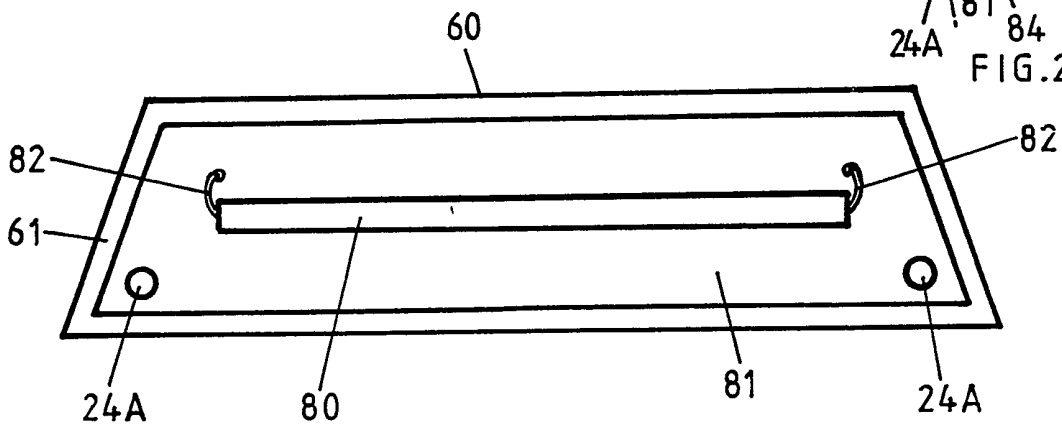


FIG. 3

## ALARM SYSTEM

This invention relates to an alarm system particularly a system including a light source intended to give a light alarm signal when activated.

Most alarm systems initiate a loud audio signal from a loud speaker/siren mounted in a secure container located on the exterior of a building. Many systems additionally include a light alarm signal, normally a strobe (flashing) light. Increasingly, because of the instance of false alarms, it is becoming a legal requirement that the audio signal switches itself off after a preset time. In UK the preset time is twenty minutes but in some countries it is less than five minutes. Such rules do not apply to the light alarm signal and accordingly the importance of the light signal is increased so that there is a continued signal to indicate that all may not be well.

It is known for potential intruders to a building to try to disable the alarm system on the exterior of the building before intrusion within the building. Conventional strobe lights associated with existing alarm systems are all easily broken. Breaking the strobe on existing systems does not trigger the alarm system.

An object of the present invention is to provide an alarm system which is more secure and less susceptible to successful disablement.

In one aspect the invention provides an alarm system comprising a light source adapted to be mounted on an exterior wall of a building and for connection to initiating means adapted, when activated, to initiate the light source to give an alarm signal, the light source being embedded in and/or arranged to transmit light through a solid piece of strong light transmitting material such that when mounted no wiring is accessible for disablement.

In another aspect the invention provides an alarm system comprising an audio alarm located within a secure container, the container being adapted to be mounted on an exterior wall of a building and to be connected to initiating

means arranged, when activated, to initiate the alarm, and including a light source arranged to be initiated by the same initiating means to give a light indication, the light source being embedded in and/or arranged to transmit light through a solid piece of strong light transmitting material secured to the exterior of the container such that no wiring is accessible for disablement.

Preferably a strobe fluorescent light tube is embedded in a sheet or block of transparent or translucent plastics material which is multifaceted. As an alternative the light source can be located inside the container or building and light transmitted to the material by reflection, refraction or light tube.

With advantage the material is attached to the container or building by fastening means, the removal of which is arranged to initiate the alarm. Preferably the material is attached to the container and the container contains means susceptible to tilting or shock which initiates the alarm means. Thus if anyone attempts to disable the strobe by hitting it or disconnecting it the alarm will be initiated.

One embodiment of the alarm system will now be described by way of example only with reference to the accompanying drawings of which :-

Figure 1 is an exploded diagrammatic view of an alarm system including a siren alarm and a strobe light source,

Figure 2 shows diagrammatically on a larger scale the system of Figure 1 with the parts connected together and with a modified light source, and

Figure 3 shows a view in the direction of arrow 3 of Figure 2.

The siren alarm system is substantially as described and claimed in our GB Application 9105495.7. This system comprises a metal back plate 12 having a base 13 formed with four depressions defining feet 14 adjacent its corners. The back plate is secured to the exterior wall 15 of a building by screws 16 extending through screwholes in the centres of

the depressions and with the feet abutting the wall so that the back surface 18 of the back plate is spaced from the wall by about 6 millimetres. The top, side and bottom edges 20, 21 and 22 respectively are turned forwardly and are also turned inwardly at an angle of about 10 degrees. The bottom edge 22 defines two screwholes for receiving screws 24 for securing an outer cover member 25 to the back plate. The outer cover member 25 has an inwardly turned lip 26 along its top edge which engages over the top of the back plate and the cover member has no openings therein except those for receiving the screws 24. The back plate and outer cover member when fixed thereto and secured to the wall thus form an outer container whose only openings face the wall.

The back plate has an aperture 31, defined by a bush 32 for receiving an electrical cable 33 extending through the wall from an alarm initiation means, of known form, within the building. A mounting plate 40 is mounted on the back plate in an insulated manner and carries loud speakers 28 for producing an audio alarm. The mounting plate also carries all the necessary electronics and wiring and this is of known form and not illustrated. The mounting plate has forwardly turned edges, at least sides edges 41 of which are also turned inwardly at an angle of about 10 degrees. A backup battery 46 is also mounted on the mounting plate. Micro switches 48, of known form, are arranged to be engaged by the screws 24 such that if the screws are removed the alarm is triggered.

An inner cover member 50 is made from sheet metal having a flat top 51 and sides 52 which slope outwardly at about 10 degrees and are dimensioned to be a close fit within the inwardly sloping edges 41 of the mounting plate.

The outer cover member 25 is formed from sheet metal having a top 60 and sides 61 which are outwardly sloped at an angle of about 10 degrees. When the outer cover is secured to the back plate it is spaced from the inner cover. Mounted on the outer cover member between the inner and outer cover members is a mercury tilt switch 63 of known form for other

uses but new in such alarm systems. The switch 63 is arranged to activate the alarm if the outer cover member is tilted more than a predetermined amount, for example five degrees or is subjected to a shock above a predetermined level, for example 2g. A similar mercury tilt switch 64 is mounted on the inner cover member. Wiring connecting the tilt member to the alarm initiation means is shown diagrammatically at 65.

A strobe fluorescent light generating tube 80, eg a xenon tube which builds up charge and discharges at breakdown voltage, is embedded within a solid sheet or block 81 of strong transparent or translucent plastics material for example an acrylic material. The material could be any other light transmitting material such as so called "unbreakable" glass. The sheet 81 of plastics material is secured to the exterior of the container by the screws 24 which have heads 24A countersunk in holes in the sheet of plastics. Thus if anyone attempts to dismount the sheet 81 containing the strobe light they will trigger the alarm via the switches 48. The light tube is connected to a power source initiated by the alarm initiation means via wiring indicated at 82 extending through the container behind the plastics material so that no wiring is accessible from the exterior of the container for disablement. If anyone attempts to smash the plastics material in which the tube is embedded and thus the tube, the shock will trigger the mercury tilt switch 63.

In the alternative shown in Figure 2 the sheet of plastics material 81 extends to within the container and light is transmitted to the material from a light source 83 within the container by reflection, refraction or light tube. The surface 84 is multifaceted to increase light transmission in all directions.

While the illustrated embodiment shows the light source attached to the container of a siren alarm system the light source could be completely separately mounted or an additional light source could be separately mounted on another part of the building and connected to the alarm

initiation means. The mounting should include means arranged to trigger the initiating means if the light source is subjected to sufficient shock if an attempt was made to dismount the light source from its mounted position.

**CLAIMS**

- 1 An alarm system comprising a light source adapted to be mounted on an exterior wall of a building and for connection to initiating means adapted, when activated, to initiate the light source to give an alarm signal, the light source being embedded in and/or arranged to transmit light through a solid piece of strong light transmitting material such that when mounted no wiring is accessible for disablement.
- 2 An alarm system comprising an audio alarm located within a secure container, the container being adapted to be mounted on an exterior wall of a building and to be connected to initiating means arranged, when activated, to initiate the alarm, and including a light source arranged to be initiated by the same initiating means to give a light indication, the light source being embedded in and/or arranged to transmit light through a solid piece of strong light transmitting material secured to the exterior of the container such that no wiring is accessible for disablement.
- 3 An alarm system according to claim 1 or claim 2 in which the light source is a strobe light.
- 4 An alarm system according to any of claims 1 to 3 in which the light source is a fluorescent light tube and is embedded in a sheet or block of transparent or translucent plastics material.
- 5 An alarm system according to any of claims 1 to 4 in which the light source is located inside the building or container and is arranged to transmit light to the piece of material by reflection, refraction or light tube.
- 6 An alarm system according to any of claims 1 to 5 in which the piece of material is multifaceted.
- 7 An alarm system according to any of claims 1 to 6 in which the piece of material is connected to the container or wall by fastening means and including means arranged to activate the initiating means if the fastening means are tampered with.
- 8 An alarm system according to claim 7 in which the



fastening means are screws with heads countersunk into the piece of material.

9        An alarm system substantially as described herein with reference to or as illustrated in the accompanying drawings.

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Examiner's report to the Comptroller under  
Section 17 (The Search Report)

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Relevant Technical fields

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Search Examiner

N JACOBS

Databases (see over)

- (i) UK Patent Office  
(ii)

Date of Search

13 MAY 1992

Documents considered relevant following a search in respect of claims

1-9

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
	NONE	

Category	Identity of document and relevant passages	Relevant to claim(s)

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