

[54] **ALARM SYSTEM FOR BUSINESS MACHINES**  
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[51] Int. Cl. ....**G08b 13/14**

[58] Field of Search .....**340/272, 280, 283; 200/85**

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[57] **ABSTRACT**

An alarm system for protecting business machines and the like against theft, which includes a casing for location on a base support such as a desk or the like, for containing the components of the alarm system, and for supporting the machine to be protected. The alarm becomes operative upon (1) unauthorized removal of the machine from the alarm containing casing; or (2) unauthorized removal of the machine, together with the alarm containing casing from the base support.

**10 Claims, 9 Drawing Figures**

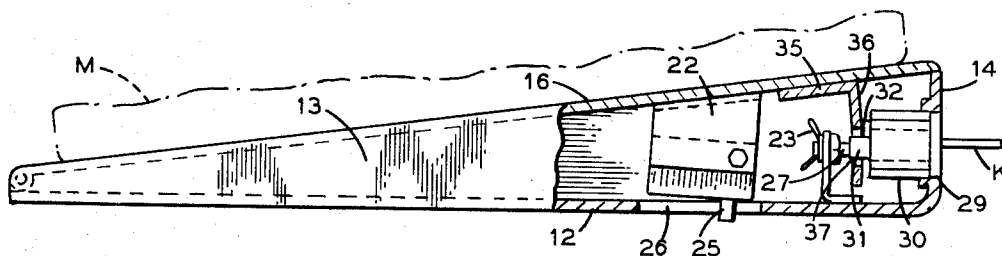


FIG. 1

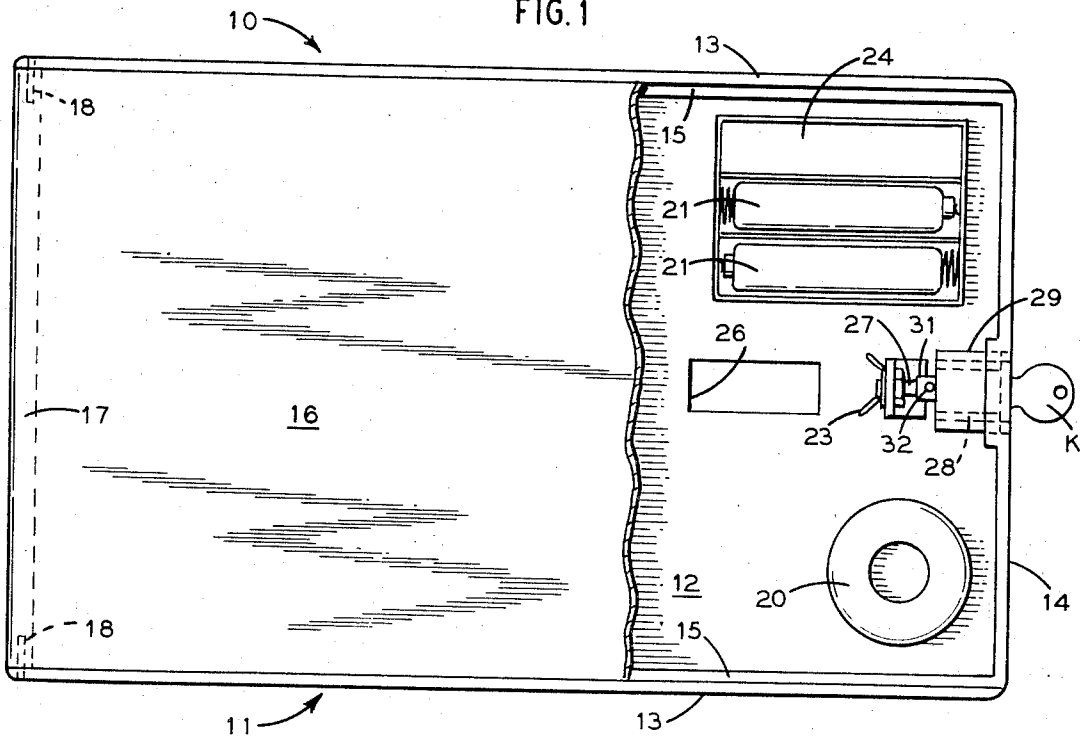


FIG. 2

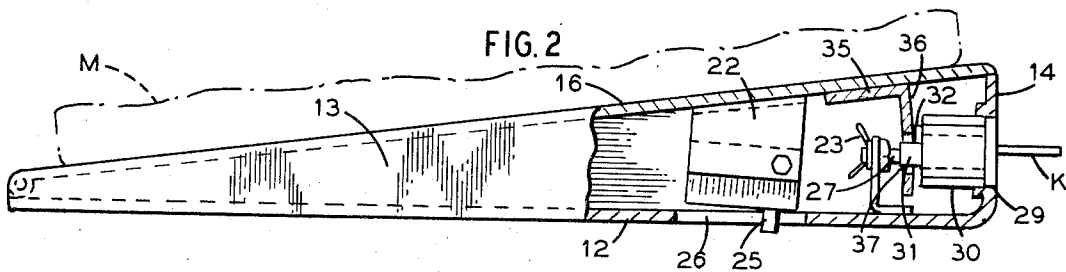


FIG. 3

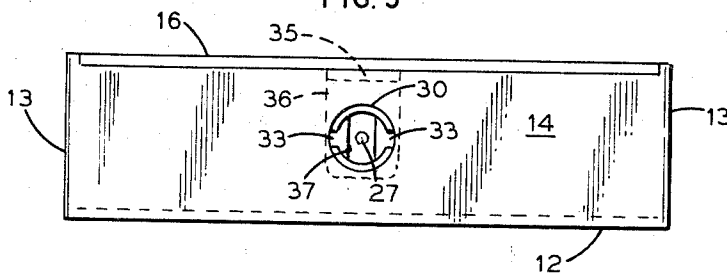
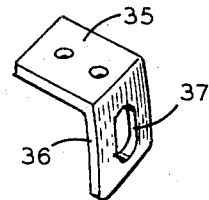


FIG. 4



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FIG. 5

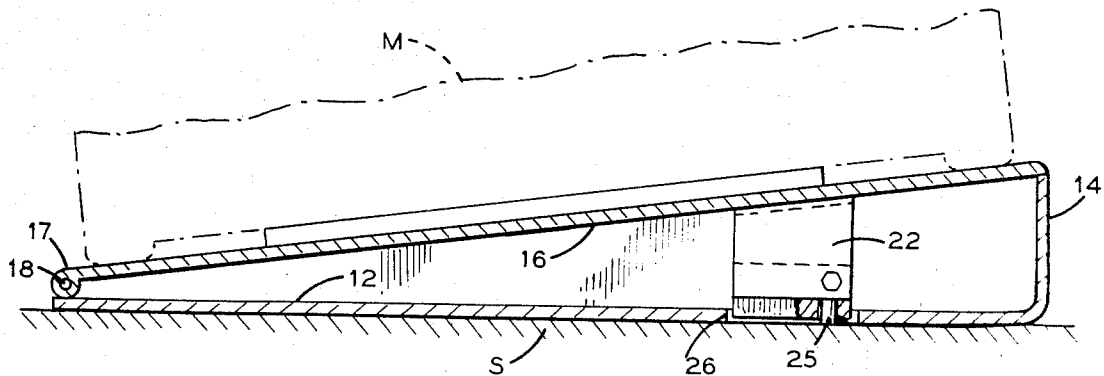


FIG. 6

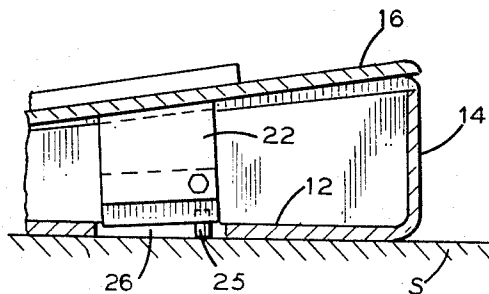


FIG. 7

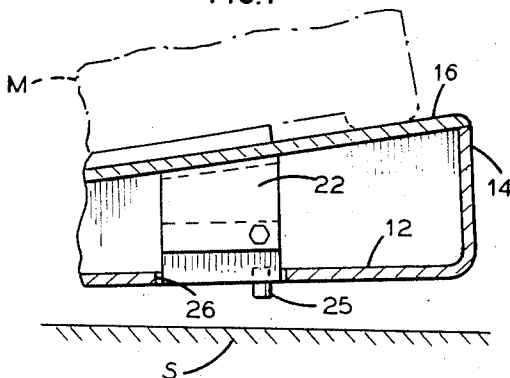


FIG. 8

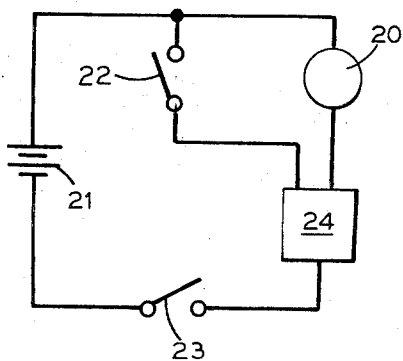
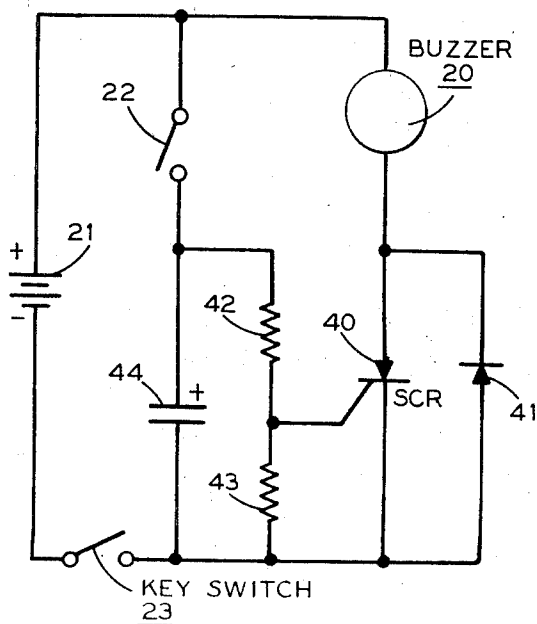


FIG. 9



## ALARM SYSTEM FOR BUSINESS MACHINES

### BACKGROUND OF THE INVENTION

It has been proposed to provide various alarm systems of the electrically operable type, for reducing the incidence of theft of articles from display stands; of attache cases, and other movable containers having valuable contents.

However, such known alarm systems have not gone into extensive use for a number of reasons, including, complexity of construction which makes the system expensive to manufacture; the necessity for integrally combining the alarm system with the item being protected, thus making the combination a special or custom made device; and excessive need for maintenance.

Accordingly, an object of this invention is to provide an improved alarm system as a separate, integral unit, which is of relatively simple construction, economical to manufacture, and adapted for use with a variety of different business machines or other valuable equipment susceptible to theft.

Another object of this invention is to provide an improved alarm system of the character described, which includes a relatively small, compact casing for containing the components of the alarm system; the casing being adapted to be interposed between the machine to be protected and a base support such as a desk or the like; the casing being of a configuration such as to position the machine when in use in a manner to facilitate the keyboard or key manipulation or otherwise optimize the normal usage of the machine.

A further object of this invention is to provide a device of the character described, wherein the casing includes a movable portion thereof for triggering the alarm system in the event that such movable portion moves to an operative position upon removal of the machine from the casing; the movable portion of the casing being depressed to an inoperative position thereof by the weight of the machine resting on the casing.

Still another object of this invention is to provide an improved alarm system of the character described, which includes control means for triggering the alarm in response to unauthorized removal of the machine being protected, with or without the alarm containing casing.

Yet another object of this invention is to provide in an alarm system of the character described, key operated switch means for arming the system, together with means for continuing the operation of the triggered alarm until deactivated by suitable operation of the key operated switch means.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

### BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings,

FIG. 1 is a top plan view of an alarm system embodying the invention, with portions of the movable top wall cut away to expose to view components of the system;

FIG. 2 is a longitudinal sectional view thereof;

FIG. 3 is a front elevational view thereof;

FIG. 4 is a perspective view of a locking element of the system;

FIG. 5 is a view similar to that of FIG. 2, showing the alarm system in association with the machine being protected; the casing carrying the components of the system being interposed between a base support and the machine;

FIG. 6 is a partial sectional view similar to that of FIG. 5, showing the condition of the casing when the machine is removed therefrom and the alarm system is triggered in response thereto;

FIG. 7 is a sectional view similar to that of FIG. 6, showing the machine and casing conjointly removed from the base support, to still trigger the alarm system;

FIG. 8 is a block diagram showing the connections of the components of the alarm system; and

FIG. 9 is a circuit diagram of the latch means thereof.

### DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in the drawings, 10 designates an alarm device embodying the invention, which may be used to protect various business machines such as desk calculators or the like. The same comprises a casing 11 which may be of rectangular shape and wedge cross section, for the reasons hereinafter set forth. Casing 11 may be formed of molded plastic or the like and comprises a bottom wall 12, tapered side walls 13, a front wall 14.

The upper edges of side walls 13 are rabbeted, as at 15 to receive a top wall 16. Top wall 16 is arranged for pivoted movement at the rear end 17 thereof, by way of pivot pins 18 extending through side walls 13.

The casing 11 is interposed between a base support S, which may be a desk top or the like; and a business machine M which is to be protected by the alarm system. The wedge shape of the casing 11 tilts machine M upwardly so as to facilitate the reading and manipulation of the keyboard thereof; the machine resting on top wall 16 of the casing.

Means is provided for sensing the absence of machine M, as when it is removed from its customary position on casing 11, without authorization. To this end, there is located within casing 11 an alarm buzzer 20 which is electrically interconnected with a current source in the form of batteries 21, a sensing switch 22, an arming switch 23 and an electronic latch assembly generally indicated at 24.

Sensing switch 22 is mounted on the underside of the pivoted top wall 16 and includes a downwardly extending, spring biased operating member 25 which projects through a slot 26 formed in bottom wall 12. When switch member 25 is in its retracted position, as when casing 11 lies on support S and in turn carries machine M, as shown in FIG. 5, the circuit to buzzer 20 is open and therefore in an inoperative condition.

However, if machine M is lifted off of casing 11, as in the case of attempted theft of the same, the pivoted top wall 16 is free to rise under the action of the spring biased switch member 25, which then assumes its projected position, as shown in FIG. 6. In this case, switch 22 is in its closed circuit condition and the buzzer 20 is energized to give a piercing audible alarm.

If both machine M and casing 11 are lifted conjointly from support S, to prevent lift of top wall 16; the switch 22 still becomes operative, inasmuch as switch member 25 no longer engages support S and is free to project, as shown in FIG. 7, closing the circuit to buzzer 20.

The alarm system is armed by way of key operated arming switch 23 which is mounted on the vertical leg of an angle member 26 whose horizontal leg is fixed to bottom casing wall 12; the switch 23 being located adjacent the center portion of front casing wall 14. The switch 23 includes a depressable operating member 27; the switch being normally open and closed when member 27 is moved inwardly, against a spring bias.

The switch 23 is controlled by a key operated lock cylinder 28 which is removably inserted in an opening 29 in front wall 14, which opening communicates with a collar 30 fixed to the inner side of wall 14 and aligned with switch member 27.

The lock cylinder 28 carries a set of radially extending, spring biased latch elements, not shown; which elements are in a retracted position when key K is inserted in the forward end of cylinder 28 and project radially when said key K is removed therefrom. Cylinder 28 also includes an abutment portion 31 on the inner end thereof for engaging and depressing switch member 27 when said cylinder 28 is fully inserted in collar 30. Also, a radially extending locking pin 32 is fixed on abutment portion 31 and is located 90° away from the latch elements.

The collar 30 is formed on the inner portion thereof with horizontally located, opposed slots 33 for receiving the set of latch elements in their projected position. Thus, to arm the alarm system, with the top casing wall 16 depressed by the weight of the machine M carried thereby, the cylinder 28 is inserted into collar 30 by way of opening 29; the key K being inserted in the cylinder to retract the latch elements thereof. The cylinder 28 is initially in a position to pass pin 32 thereof through one of slots 33 in collar 30.

When cylinder 28 is fully inserted, abutment portion 31 depresses switch member 27, closing switch 23. The cylinder 28 is then turned by means of key K 90°, to bring pin 32 into engaging relation with the inner edge of collar 30 and aligning the latch elements with a slot 33. On withdrawing key K from cylinder 28, the same is locked in place and switch 23 can only be deactivated upon reinserting key K in cylinder 28, turning the cylinder in collar 30 to align pin 32 with a slot 33, thereby allowing the cylinder 28 to be withdrawn and opening switch 23.

Means is provided to lock top wall 16 against opening when cylinder 28 is in place, to prevent access to the interior of casing 11. To this end, an angle member 35 has its horizontal leg secured to the underside of top casing wall 16 and located to dispose the vertical leg 36 thereof between the inner end of collar 30 and switch 23. Leg 36 is formed with an enlarged opening 37 which allows the inner end of cylinder 28 to extend therethrough, thereby preventing top wall 16 from being opened to expose the components of the alarm system within casing 11. The opening 37 is sufficiently large to allow for the limited movement of top wall 16 between its depressed and raised positions as determined by spring biased switch member 25, as described above.

Once the alarm system 10 is triggered to activate buzzer 20, by unauthorized removal of machine M alone, or conjointly with casing 11; the buzzer 20 will continue to give its piercing audible alarm, despite depression of top casing wall 16 or restoring the

machine M and casing 11 to support S. This is accomplished by electronic latch assembly 24 in circuit with buzzer 20, batteries 21, and switches 22, 23.

The assembly 24 comprises a silicon controlled rectifier 40 in series circuit with buzzer 20; a diode 41 in parallel with SCR 40; a pair of resistors 42, 43 in series and connected at their junction to the gate of SCR 40; a condenser 44 in parallel with resistors 42, 43; the sensing switch 22 triggering SCR 40 to energize buzzer 20, notwithstanding the opening of sensing switch 22 thereafter.

It is understood that electronic latch assembly 24 may be replaced by other devices having a similar function, such as a latching relay or the like.

While alarm device 10 is shown as being used with an office machine M, it is understood that the same could be used to protect various pieces of equipment other than business machines, where such equipment is carried by device 10, which senses the unauthorized removal thereof and triggers the alarm as described above.

Further, casing 11, while shown as a wedge shaped member, could have other configurations to suit the nature of the piece of equipment carried thereby and any aspect of its normal usage.

We claim:

1. An alarm system for use with a business machine and a support base for said machine, said system comprising intermediate support means removably positioned between said machine and said support base, said intermediate support means including a movable portion for receiving thereon the bottom of said business machine, alarm means, and means for controlling the operation of said alarm means, said controlling means being mounted on the movable portion of said intermediate support means, said controlling means including a movable actuator member and means for biasing said actuator member to its operative position, said actuator member abutting said support base when said machine is normally disposed on said intermediate support means and said intermediate support means is disposed on said base support and being moved to its inoperative position, said actuator member being automatically moved to its biased operative position for operating said alarm means upon (1) removal of said machine from said intermediate support means whereby the removal of the weight of said machine is effective to lift the movable portion of said intermediate support means in response to the bias of said actuator member and to simultaneously allow the biased actuator member to move to its operative position, or (2) concurrent removal of said machine and said intermediate support means from said support base whereby said actuator member is no longer in abutting relation to said support base and is thereby biased to its operative position.

2. An alarm system as in claim 1, wherein said intermediate support means comprises a casing, said casing includes a movable top wall and a bottom wall formed with an opening, said control means being mounted on the underside of said top wall and said control member projecting through the opening in said bottom wall.

3. An alarm system as in claim 2, wherein said alarm means is within said casing and is electrically operable, said control means comprising switch means in circuit

with said alarm means, said actuator member being a spring biased switch element on said switch means movable between a normally open position and a closed position, the weight of said machine being effective to depress said casing top wall and to move said switch element to its open position; and the removal of said machine from said casing top wall being effective to raise said casing top wall and to move said switch element to its closed position.

4. An alarm system as in claim 3 and further including latch means in circuit with said alarm means and said switch means for continuing the operation of said alarm means despite the movement of said switch element to its open position.

5. An alarm system as in claim 4 and further including a key operated arming switch in circuit with said alarm means, said arming switch including a normally open switch, cylinder lock means removably mounted on said casing for engaging and closing said normally open switch, key operable means on said lock means for locking said cylinder lock means to said casing.

6. An alarm system as in claim 5, and further including means on the top wall of said casing engagable with said cylinder lock means for preventing opening movement of said casing top wall.

7. An alarm system as in claim 1, wherein said intermediate support means includes a bottom wall formed with an opening, tapering side walls and a top wall pivoted at the rear edge thereof on the reduced rear end portions of said side walls to provide said casing with a wedge cross section, said control means being mounted on the underside of said pivoted top wall and said actuator member projecting through the opening

in said bottom wall.

8. An alarm system as in claim 7, wherein said alarm means is electrically operable, said control means comprising switch means in circuit with said alarm means, said actuator member being a spring biased switch element, an arming switch in circuit with said alarm means and located adjacent a wall portion of said casing, an opening in said casing wall portion in alignment with said arming switch, collar means mounted in said opening, a lock cylinder removably mounted in said collar for operating said arming switch, and key means for locking said lock cylinder in its arming switch operating position.

9. An alarm system as in claim 1 wherein said alarm means comprises electrically operable buzzer means, said intermediate support means comprising a depressible wall portion, said control means comprising switch means in circuit with said buzzer means, said actuator member comprising a spring biased switch element operable to maintain said depressible wall portion in a raised position in the absence of any weight thereon and concurrently closing said switch means.

10. An alarm system for use with a business machine and a support base, said alarm system comprising a casing disposed on said support base for supporting said machine, said casing including a movable wall portion underlying said machine, alarm means and control means for operating said alarm means, said control means being mounted on the underside of said movable wall portion and including spring biased means for raising the casing movable wall portion in the absence of said machine for rendering said control means operative.

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