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Massover et al.

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[54] SHOWCASE ALARM SYSTEM

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[52] **U.S. Cl.** **340/274,** 200/86, 340/272

[51] **Int. Cl.**.....**G08b 13/08,** G08b 13/10

[58] **Field of Search**.....340/272, 273, 274, 276, 278, 340/280; 200/86; 307/116; 192/129

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[57] **ABSTRACT**

A door-alarm system for a merchandise showcase includes a floor-mat switch positioned behind the showcase in the area occupied by sales personnel, automatically disabling the system to permit authorized opening of the showcase and also providing an automatic alarm signal in the event the salesperson commences to leave with the door open. There are described various wiring arrangements for a multiple-door system to suit particular conditions of use.

7 Claims, 3 Drawing Figures

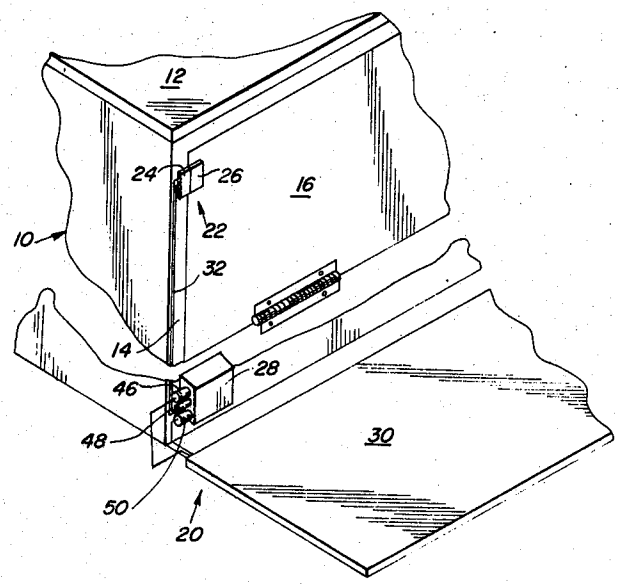


FIG. 1

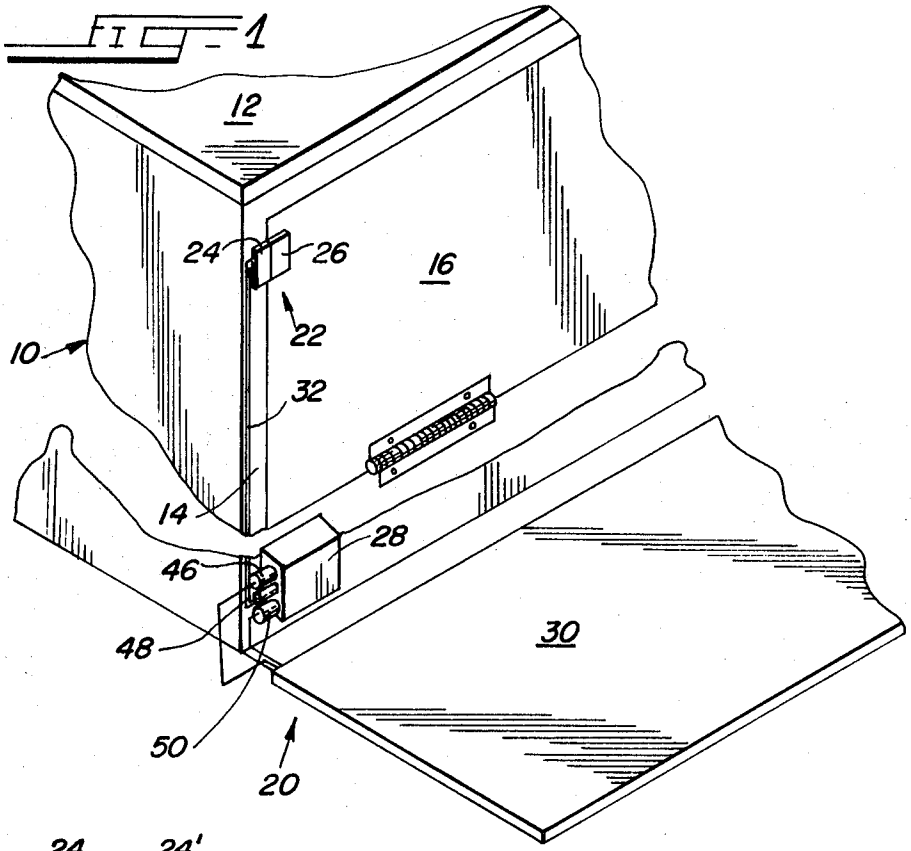


FIG. 2

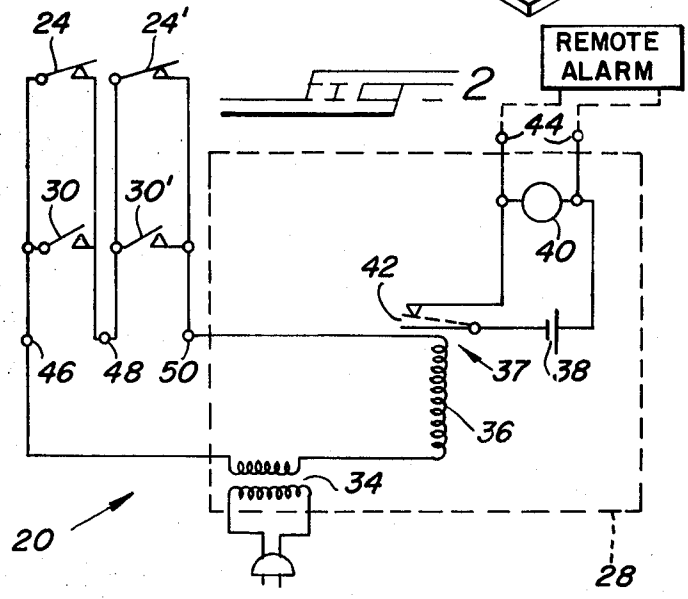
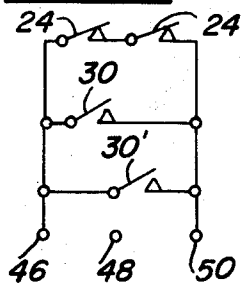


FIG. 3



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SHOWCASE ALARM SYSTEM

This invention relates to showcase alarm systems and more particularly to an alarm system for use with showcases of the type wherein salesmen or other authorized persons have access to displayed merchandise through a door at a position or station normally occupied by such authorized personnel.

Showcases typically are rectangular enclosures provided with a door in the wall generally referred to as the back of the showcase, this being the area occupied by sales personnel. In a common form of shoplifting, a shoplifter, when no salesperson is present, frequently reaches over the counter from the front and opens the door. A lock-and-key arrangement is the commonest form of preventive measure. It is well known that the mere act of observably opening a lock with a key creates an atmosphere which is offensive to some customers. Even more importantly, it proves a great nuisance, particularly in a busy salesroom, to use the key in the prescribed manner, and it is common experience that the key is left in the lock when the salesperson steps away for what is expected to be only an instant, sometimes in response to a diversion deliberately created by a shoplifter or a confederate for this purpose.

An alternate sometimes used for a lock-and-key arrangement is an alarm device. Door-alarms are of course well known for various purposes in connection with prevention of theft. Such alarms are normally provided with some form of switch permitting disablement. However, it is found that the employment of known forms of door-alarm devices for a showcase is at least equally objectionable as the use of a lock-and-key. There is thereby introduced the occasional occurrence of the salesperson opening the door without disabling the alarm, thus resulting in a noisy disturbance objectionable not only to the customer being waited upon but to all others on the premises. As a concomitant, the tendency of salespeople to fail to reactivate the alarm during absences expected to be brief is magnified. It has been observed that such systems fall into early disuse.

It is the principal object of the present invention to provide a showcase protection system employing an alarm which is fully practical for use. In an alarm system of the invention, the presence of the sales person at his station behind the counter is sensed and the alarm system is automatically disabled in response to his presence and placed in operation in response to his absence.

In addition to the principal object thus achieved, a number of subsidiary objects are accomplished by the invention. The system is so constructed so that it cannot be disabled by cutting of wires or similar artifices commonly employed by shoplifters, and also so that it may readily be installed on existing showcases. Flexibility is provided for various conditions of use, as for a two-door showcase or a plurality of showcases. The manner in which these further aims and objects is achieved will be best understood from consideration of the embodiment of the invention illustrated in the drawing and described below.

In the drawing:

FIG. **1** is a fragmentary perspective view of a showcase equipped with an alarm system embodying the invention;

FIG. **2** is a schematic circuit diagram of an alarm system of the invention constructed for a showcase having two doors and illustrating one arrangement of the door switches and pressure floor switches; and

FIG. **3** is a similar view showing an alternate arrangement of the door and floor switches of FIG. **2**.

Referring to FIG. **1**, there is illustrated a portion of a conventional showcase **10** having a counter top **12** and a rear wall **14**. Rear wall **14** has a door **16**. A common type of showcase has two horizontally adjacent doors which may be hinge-mounted as illustrated or slideably mounted. Door **16**, where hinged at its bottom edge as shown, is normally provided with a suitable latch (not shown) for retaining the door in the closed position.

Associated with the showcase **10** is an alarm system indicated generally by the reference character **20**, having an electrical switch assembly **22** which is actuated by the opening or closing of the door **16**. Switch assembly **22** may be of any conventional door-actuable form. In a preferred embodiment of the invention, it comprises a magnetically operated reed switch **24** mounted on rear wall **14** and a cooperating magnet **26** mounted on the door **16**. Switch **24** is of the normally-open type, but when door **16** is closed, the magnet **26** is in registry with the switch and maintains it in the closed condition.

A housing **28** containing a signal bell or buzzer and the further electrical elements to be subsequently described is located on or near the showcase **10** and preferably mounted on the back wall **14** as illustrated. A floor-mat switch **30** is behind the showcase in the normal salesperson station. The floor-mat switch **30** is of the type used in automatic door-openers and similar applications, closing a circuit in response to weight. Suitable external electrical wiring **32** connects the door switch **24**, housing **28** and floor-mat switch **30** in the manner hereinafter described. With showcases having two doors there may be provided a second door switch **24'** and a second floor-mat switch **30'**, as illustrated in FIGS. **2** and **3** of the drawing, but omitted in FIG. **1**.

The electrical circuitry within the housing **28** includes a power transformer **34** whose primary is externally connected to the alternating-current power line. The coil **36** of a relay **37** is energized by the transformer. A battery **38**, a bell or buzzer **40** and relay contacts **42** are connected in series. Relay contacts **42** are normally (i.e., when the coil **36** is not energized) closed, this position being shown dotted in FIG. **2**. Sounding of the buzzer **40** thus occurs whenever flow of current through the relay coil is interrupted. To sound a remote alarm simultaneously with the buzzer **40**, as in an executive office, terminals **44** in parallel with the buzzer are provided for this purpose.

By means of external terminals **46**, **48** and **50** on the housing **28**, the door switch or switches and floor-mat switch or switches may be connected in various ways to suit particular conditions of use. The terminals **46** and **50** are connected in series with the transformer **34** and relay coil **36**. Where only a single door is involved the door-switch **24** and floor-switch **30** are connected in parallel between these terminals (this manner of connection being omitted in the drawing). In FIG. **2**, door switches **24** and **24'** are connected in series with each other and with the transformer **34** and relay coil **36**, and each of the floor mat switches **30** and **30'** is con-

nected in parallel with its corresponding door switches. With this arrangement buzzer **40** will sound if either door switch is opened without presence of a sales person on the corresponding floor-mat switch. Such a manner of connection is employed where the conditions of use are such that a sales person is to be prohibited from stepping to the other door without closing the opened door.

In the arrangement of FIG. **3**, the door switches are also connected in series with each other and with the transformer and relay coil, but the floor-mat switches **30** and **30'** are here in parallel with each other and with the series arrangement of door switches. In this instance, either or both door switches may be opened without sounding the alarm if there is a salesperson on either floor-mat switch. This arrangement is employed where it is desired to permit opening of both doors without sounding of the alarm if the salesperson so desires, but to sound the alarm if the salesperson should leave the common station formed by the two adjacent mats.

It should be apparent without further description that the present invention provides an efficient and convenient showcase alarm system which virtually eliminates all sources of human error, as well as being effectively tamper-proof. Any cutting or other disconnection of the wiring to the door switches when the salesperson is not present, or severing or disconnection of the power line, actuates the alarm.

Persons skilled in the art will readily devise variants of the preferred embodiments of the invention described above which utilize the invention in constructions differing substantially in details. The scope of the protection afforded the invention should accordingly be determined in accordance with the definitions of the appended claims, and equivalents thereof.

What is claimed is:

1. An alarm system for a merchandise showcase of the type having a sales-counter top and an access door at the salesperson-station portion thereof comprising:

a. alarm means having a portion adapted to be coupled to the door of the showcase to produce an audible signal in response to opening of the door;

b. sensing means adapted to be placed at the salesperson-station to sense the presence of a salesperson thereat; and

c. disabling means responsive to the sensing means and coupled to the alarm means to disable the audible signal when a salesperson is present.

2. The alarm system of claim **1** in which the sensing means comprises a floor-mat switch.

3. The alarm system of claim **1** having:

d. the alarm means including a door-responsive switch opened and closed by opening and closing, respectively, of the door, and

e. the sensing means including a presence-sensing switch opened and closed by departure and arrival, respectively, of a salesperson,

so that disconnection of a switch does not defeat the alarm.

4. The alarm system of claim **3** having an enclosed housing containing means for producing the audible signal and further containing means externally coupled to the switches for actuating the signal-producing means in response to the opening of both switches.

5. The alarm system of claim **4** wherein the actuating means within the housing includes a relay having its coil externally connected to the switches and having normally-closed contacts connected to the signal-producing means, the signal-producing means including a battery within the housing.

6. The alarm system of claim **3** having a plurality of door-responsive switches and presence-sensing switches.

7. In combination with a merchandise showcase of the type having a sales-counter top and an access door at the salesperson-station portion thereof, an alarm system comprising:

a. alarm means having a portion coupled to the door of the showcase to produce an audible signal in response to opening of the door;

b. sensing means at the salesperson-station to sense the presence of a salesperson thereat; and

c. disabling means responsive to the sensing means and coupled to the alarm means to disable the audible signal.

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