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Malta et al.

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[45] **Apr. 3, 1973**

[54] **MONEY CLIP ALARM FOR A CASH DRAWER**

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[21] Appl. No.: **91,796**

[52] **U.S. Cl.** **340/280**, 200/61.61

[51] **Int. Cl.** **G08b 13/02**

[58] **Field of Search** 340/280; 200/61.61, 61.59

[56] **References Cited**

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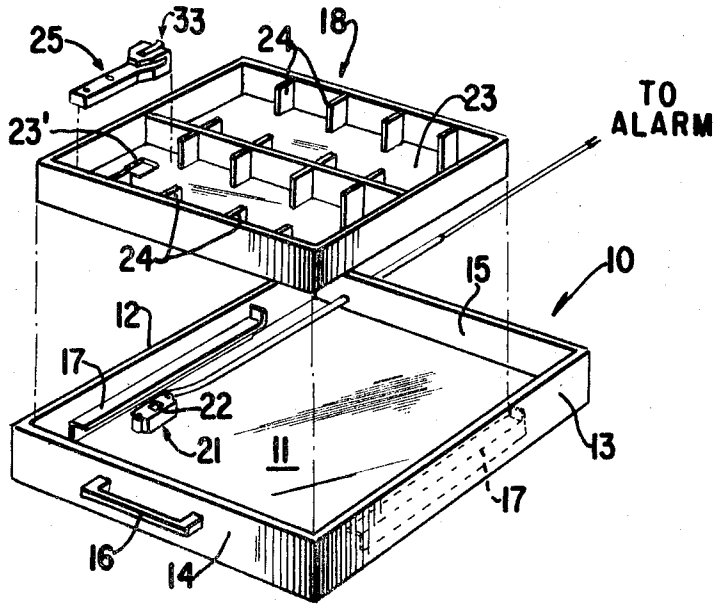
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Attorney—Smythe & Moore

[57] **ABSTRACT**

A compartmented insert for a cash drawer is provided with a money clip which includes a pivotally mounted drop actuator retained in a raised position by a paper bill inserted in the clip. The actuator is positioned over an opening in the bottom of the insert through which protrudes a control switch mounted on the bottom of the drawer. The control switch is normally closed when its switch arm is raised and is connected to an alarm circuit which is energized when the paper bill is withdrawn from the clip to unblock the actuator which pivots downwardly and engages the control switch arm to move the arm downwardly to an opened position. The alarm is especially useful in conjunction with operation of bank, or the like, security or surveillance systems.

8 Claims, 7 Drawing Figures



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SHEET 1 OF 2

FIG. 1

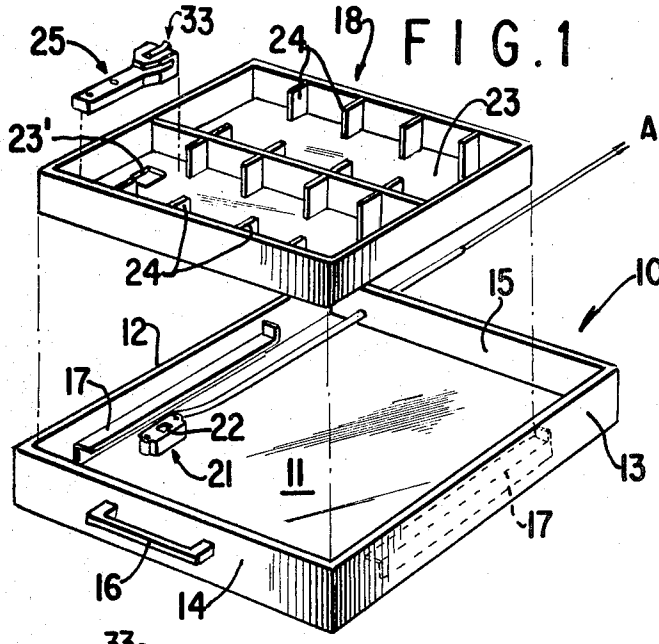


FIG. 2

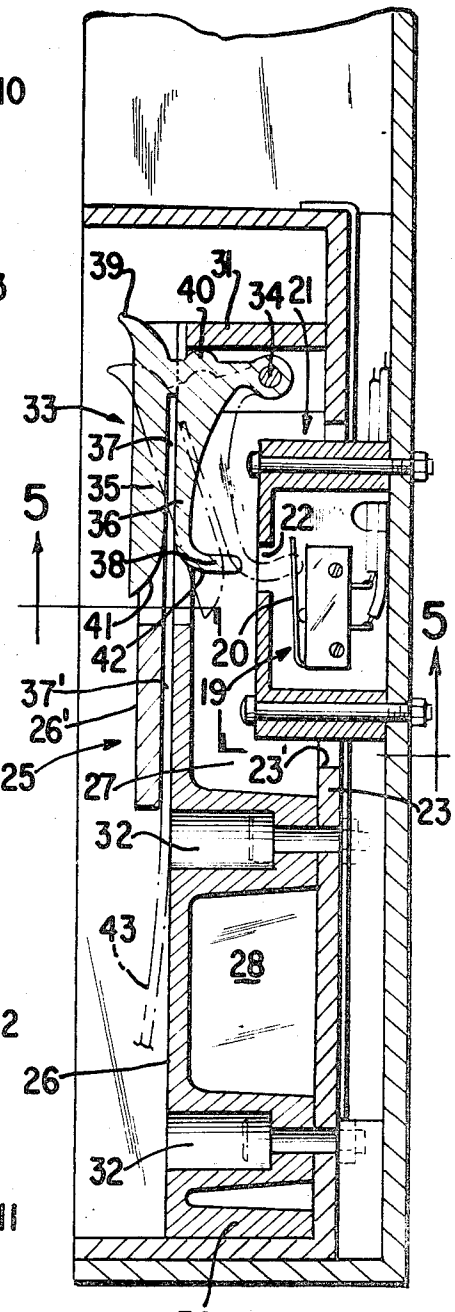


FIG. 3

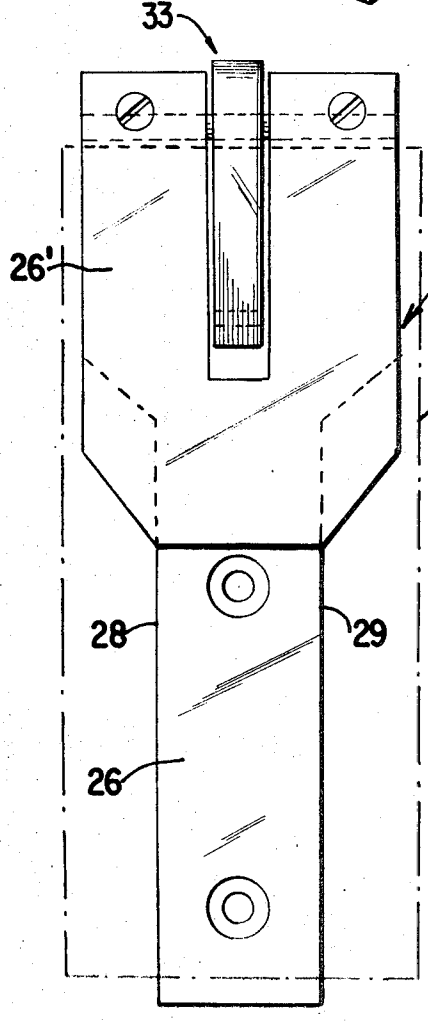
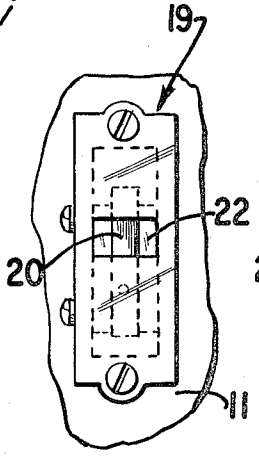
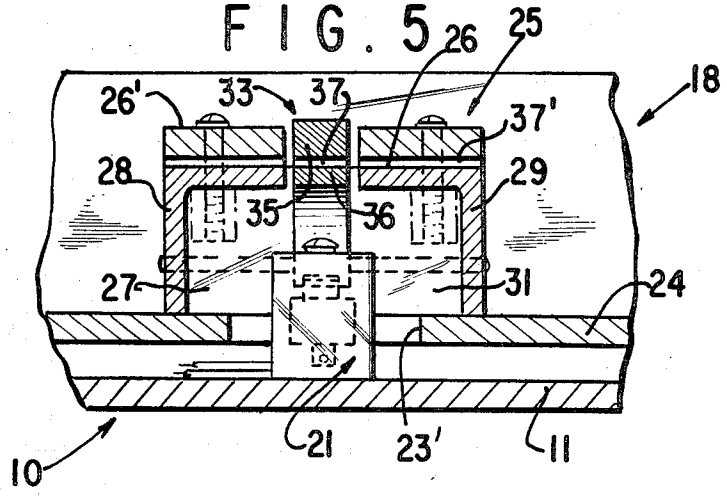


FIG. 4



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FIG. 5



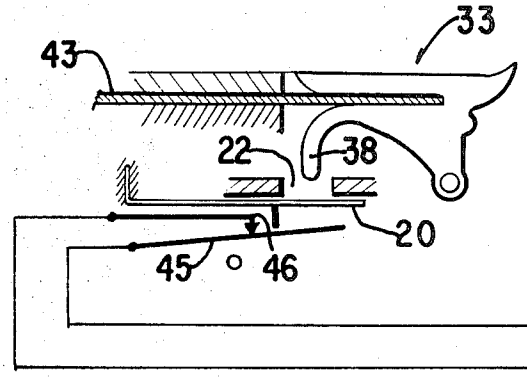
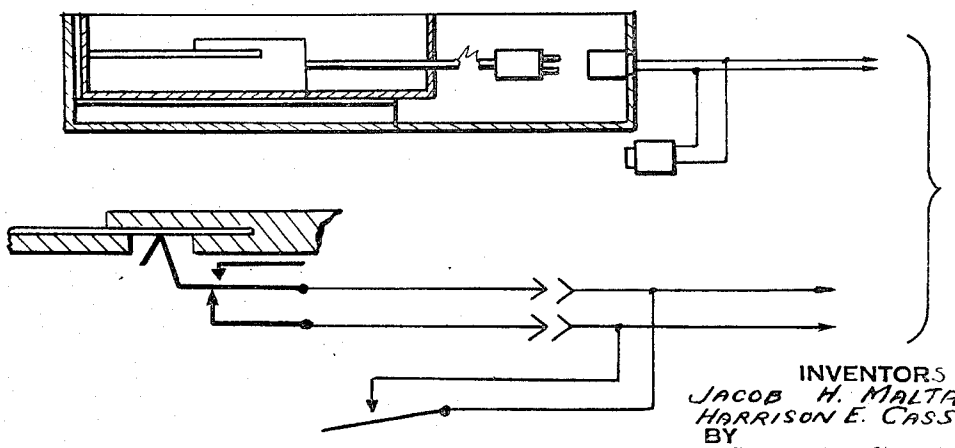


FIG. 6

FIG. 7 PRIOR ART



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MONEY CLIP ALARM FOR A CASH DRAWER

Various forms of money clips have been installed in cash drawers for the purpose of actuating an alarm when a paper bill is withdrawn from the clip. A major problem with such money clip installation is the considerable difficulty encountered in modifying the existing cash drawers to permit mounting of the clip arrangement therein. In a typical money clip installation in a cash drawer, it is usually necessary to drill holes through partitions forming compartments in the drawer to bring out the wires from the clip. In addition, an electric plug and jack plus a push button switch are usually required in order to permit removal of the compartmented insert each night for storage in the vault. When it is desired to remove the insert from the cash drawer, the electrical circuit is disconnected at the plug and jack and the push button switch utilized as the insert is removed in order that the main alarm circuit is not broken. Breaking of the alarm circuit while removing the insert would cause a false alarm to be sounded. In a similar manner, when the compartmented insert is positioned within the cash drawer, the plug and jack must be connected before the push button switch is opened in order to enable the money clip circuit to be connected into the alarm circuit. It is further necessary to install, at the rear of the cash drawer, a metal filler to hold the jack and push button. Side fillers are usually required to center the insert within the cash drawer so as to properly align the plug and jack. Not only are difficulties encountered in installing such a money clip arrangement in a cash drawer, but the complexity of a relatively simple device greatly increases the cost of providing such a protective measure for a cash drawer.

It is one of the objects of the present invention to provide an improved money clip installation for a cash drawer especially useful in a bank security or surveillance system.

It is another one of the objects of the present invention to provide a money clip installation for a cash drawer which can be installed with a minimum of difficulty and can be readily connected or disconnected with an alarm circuit when a compartmented insert is positioned or removed from the cash drawer.

According to one aspect of the present invention, a money clip alarm for a cash drawer, for a cash register, and the like may comprise a removable compartmented insert positioned within the cash drawer. There is an opening in the bottom of the insert through which a control switch having a switch arm and mounted on the bottom of the cash drawer protrudes when the insert is in position. A drop actuator is mounted for vertical pivotal movement within the insert adjacent the opening and is engageable with the control switch arm. Bracket means are mounted within the insert for retaining a paper bill therein in such a manner that the bill blocks the drop actuator in its raised position. The withdrawal of the paper bill from the bracket means unblocks the drop actuator whereby the actuator drops to engage the control switch arm to actuate the switch. The drop actuator may operate under gravity or by means of a spring and may be provided with a weight on its free end to assure dropping of the actuator when the paper bill is withdrawn. A horizontally extending recess may be provided in the drop actuator to receive a portion of the dollar bill when the bill is inserted in the bracket means. A housing may be provided for the control switch to prevent accidental tripping.

Other objects, advantages and features of the present invention will become apparent from the accompanying description and drawings, which are merely exemplary.

In the drawings:

FIG. 1 is an exploded perspective view of a cash drawer and compartmented insert incorporating the money clip installation according to the present invention;

FIG. 2 is an assembled sectional view of the money clip installation;

FIG. 3 is a plan view of the money clip;

FIG. 4 is a plane view of the protective housing for the control switch;

FIG. 5 is a sectional view along the line 5—5 of FIG. 2;

FIG. 6 is a schematic showing of the electrical circuit of the control switch; and

FIG. 7 is a schematic showing the circuitry of the prior art;

Proceeding next to the drawings wherein like reference symbols indicate the same parts throughout the various views, a specific embodiment of the present invention will be described in detail.

In FIG. 1, there is generally indicated at **10** a cash drawer such as might be used in a cash register or the like. The drawer **10** is provided with a bottom wall **11**, side walls **12** and **13** and end walls **14** and **15**. End wall **14** is the front end wall and is provided with a handle **16**.

In the interior of the drawer, an angle bracket **17** is mounted which functions both to position a compartmented insert indicated generally at **18** and to stop any sliding movement of the insert within the drawer.

The elements of the money clip installation which are mounted in the drawer comprise a precision trip control switch **19** (FIG. 2), such as a "Micro Switch," a trademark of Micro Switch, Freeport, Illinois, a division of Honeywell, Inc., having a switch arm **20** which is normally in its raised position as shown in FIGS. 2 and 6 wherein the switch is closed. Positioned on the bottom wall **11** of the drawer **10** is a housing **21** which completely encloses the control switch but for an opening **22** so as to obviate the accidental tripping of the switch. The housing **21** with its control switch **19** is positioned so as to protrude upwardly through a correspondingly shaped opening **23'** formed in the bottom **23** of the insert **18**.

The insert **18** is provided with a plurality of partitions **24** which divide the insert into a number of compartments of a suitable size to receive paper money.

The money clip is indicated generally at **25** in FIGS. 2 and 3 and comprises a unitary integral base **26** molded from a suitable synthetic plastic and formed with a compartment **27** enclosed by side walls **28** and **29** and front and rear walls **30** and **31**.

The base is provided with two countersunk openings **32** for receiving screws by which the entire money clip assembly **25** is positioned and secured to the bottom of the insert **18** so as to project over the openings **23'** in the compartment insert **18**.

A second element of the money clip assembly **25** comprises an actuator lever **33** which is pivotally mounted at **34** to the unitary intergral base **26**. The actuator lever is provided with spaced arms **35**, **36** so as to define a horizontal recess **37** into which a paper bill

may be inserted as will be presently described. The lower arm **36** of the actuator lever is also provided with a depending portion **38** which is engageable with the control switch arm **20**. To facilitate the insertion of money bill, the actuator lever is provided with a finger or thumb support **39** and a stop **40**. As will be evident from FIG. **2**, the stop **40** limits the travel of the actuator lever **32** against the rear wall **31** so as to allow the recess **37'** formed by the plate **26** and the base **26** to coincide with the recess **37** of the actuator lever **33**. To further facilitate the insertion of the paper bill, liberal radii **41, 42** are provided.

When the paper bill, such as at **43**, is positioned on the base **26** and inserted into the juxtaposed recesses **37** and **37'**, the actuator lever will be maintained in the raised position as shown in FIGS. **2** and **6**. Upon the withdrawal of the paper bill at **43**, the actuator lever will be unlocked and under the force of gravity or a spring will drop downwardly through the opening **22** in the housing **21** toward the control switch arm **20** to open the contacts **44** and **45** in the control switch **19**. The alarm current will be broken and a suitable alarm will be given.

According to the present invention, the control switch is mounted in the bottom of the cash drawer and is not a part of the money clip assembly. Thus, the removal or positioning of the compartmented insert does not disturb in any way the electrical circuit connecting the control switch to the alarm. Further, the normally closed contacts of the control switch are utilized and it is not necessary that these control switch contacts be held in an open position by the inserted paper bill. The arrangement can be used to actuate a bank security or surveillance system such as shown, for example, in copending U.S. application Ser. No. 781,938, filed Dec. 6, 1968, now U.S. Pat. No. 3,594,747 issued July 20, 1971.

It will be understood that various details of construction and arrangement of parts may be made without departing from the spirit of the invention except as defined in the appended claims.

What is claimed is:

1. In a cash drawer for a cash register and the like the combination of a removable compartmented money insert positionable within the cash drawer, there being an opening in the bottom of said insert, a control switch separate from said insert and having a switch arm, said control switch being permanently mounted on the bottom of the cash drawer and protruding through said opening when the insert is in position in the drawer, an actuator mounted for generally vertical movement within said insert adjacent said opening and engageable with the control switch arm, bracket means mounted within said insert for retaining a paper bill therein such that the bill blocks said actuator in its raised position, the withdrawal of the paper bill from said bracket means unblocking the actuator whereby the actuator drops to engage said control switch arm to actuate the control switch.

2. In a cash drawer as claimed in claim **1** wherein said actuator drops under the force of gravity.

3. In a cash drawer as claimed in claim **1** and comprising spring means urging said actuator downwardly towards said control switch arm.

4. In a cash drawer as claimed in claim **1** and comprising vertical side plates on both sides of said control switch extending above and beyond both ends of the control switch to prevent accidental tripping thereof.

5. In a cash register as claimed in claim **1** wherein said control switch is closed when its switch arm is in a raised position and opened when its arm is moved downwardly under the force of the actuator.

6. In a cash register as claimed in claim **1** and comprising an alarm circuit connected to said control switch and energized when said control switch is opened.

7. In a cash drawer as claimed in claim **1** wherein said actuator has a horizontally extending recess into which a portion of the paper bill is inserted to retain the actuator in a raised position.

8. In a cash drawer as claimed in claim **1** and comprising a weight on the free end of said actuator to assure dropping of the actuator when the paper bill is withdrawn.

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