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Brace et al.

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[54] ALARM SYSTEM AND METHOD OF INCORPORATING MAGNETIC SWITCH MEANS MAGNETICALLY CONTROLLED ELECTRICAL SWITCHES

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[52] **U.S. Cl.** **340/280,** 340/272, 200/85

[51] **Int. Cl.** **G08b 21/00**

[58] **Field of Search** .....340/272, 280; 335/205; 200/11 K, 19 M, 67 F, 57 PB, 57 GR, 153 R, 61.45 M, 85

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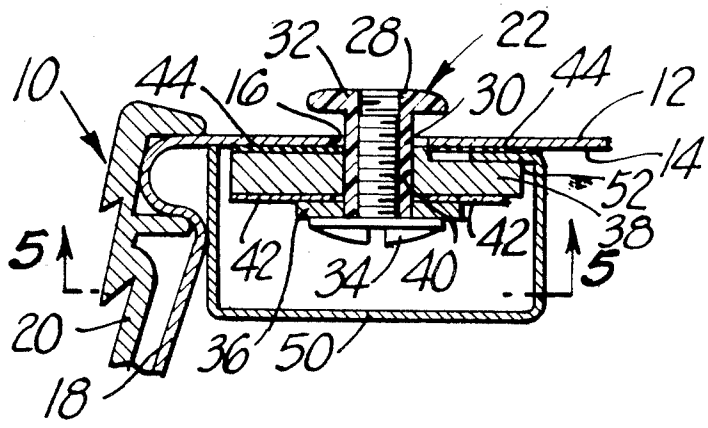
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Primary Examiner—John W. Caldwell
Assistant Examiner—William M. Wannisky
Attorney—Mahoney, Hornbaker & Schick

[57] **ABSTRACT**

A magnetically controlled switch-actuating member projects upwardly from the supporting surface of a shelf, rack or the like positioned for downward depression by a merchandise article supported on the shelf. The switch-actuating member extends downwardly through a permanent magnet block at the shelf underside, the actuating member always being urged magnetically upwardly to projecting position when depressed by the article on the shelf. Electrical contact strips extend over the magnet block and are free of contact by the actuating member when in its article-depressed position, but contacted by the actuating member when in its projecting position completing an electrical circuit therethrough to any form of electrically actuated device, such as an alarm. Thus, any given series of switches may be provided and will sound the alarm when any one of a series of articles is removed from the shelf.

7 Claims, 7 Drawing Figures



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FIG. 1.

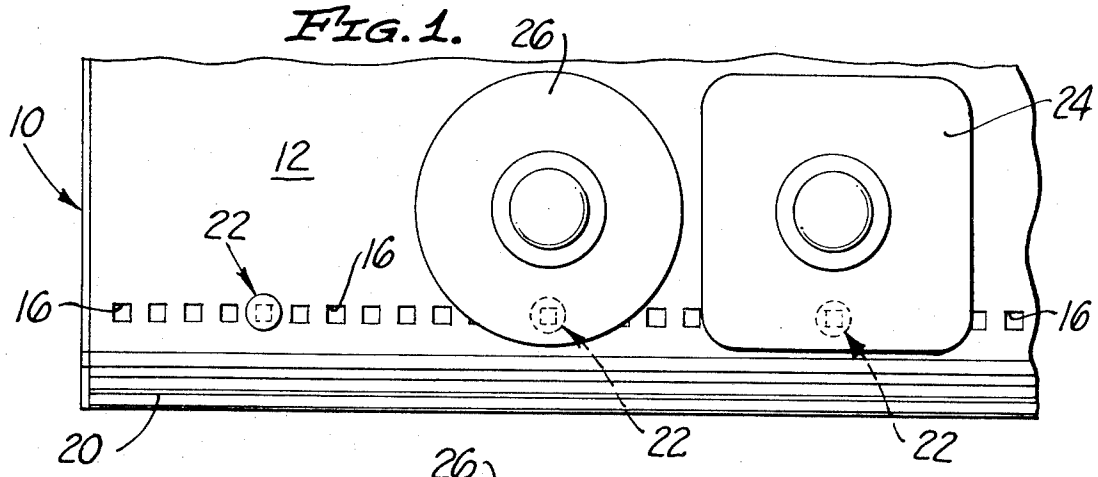


FIG. 2.

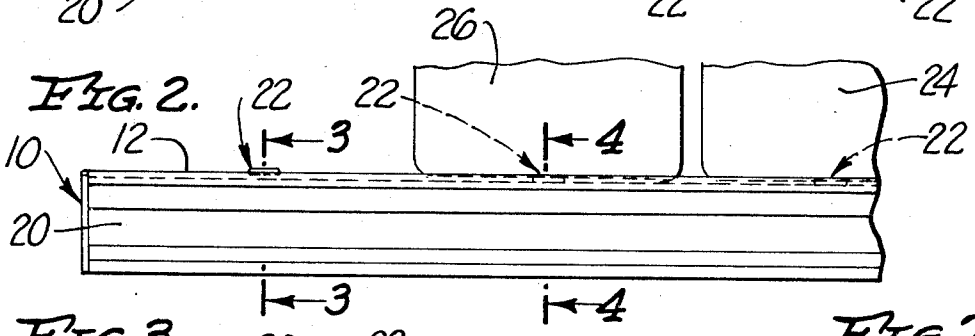


FIG. 3.

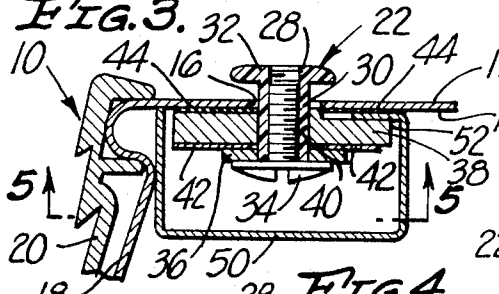


FIG. 4.

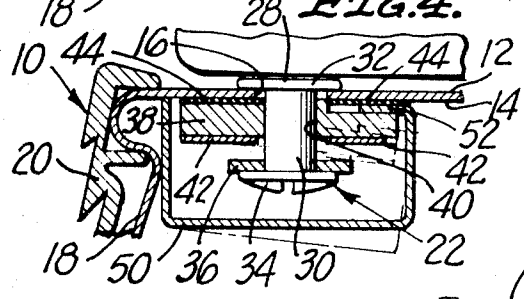


FIG. 5.

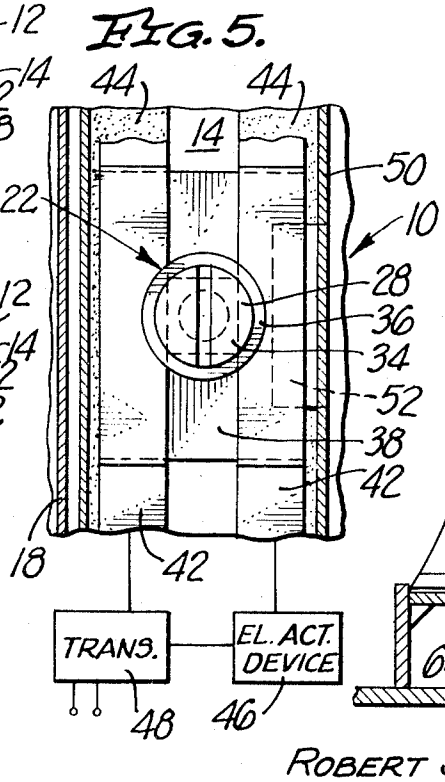


FIG. 6.

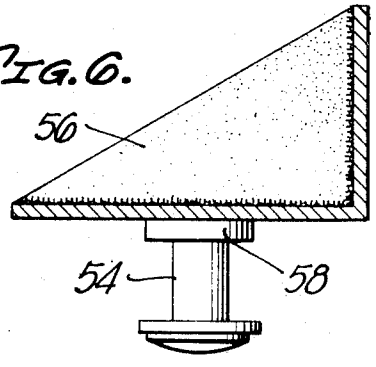
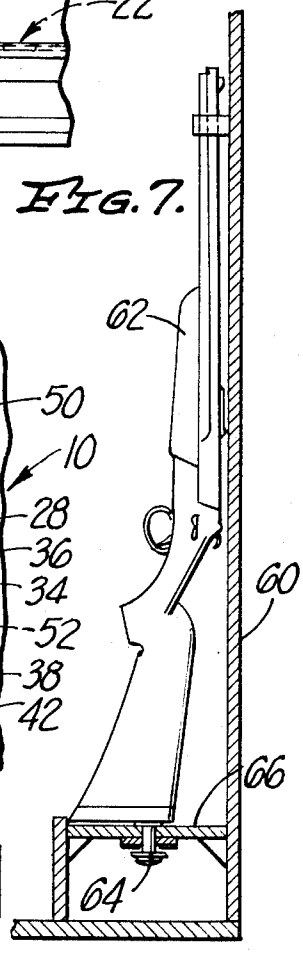


FIG. 7.



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ALARM SYSTEM AND METHOD OF INCORPORATING MAGNETIC SWITCH MEANS MAGNETICALLY CONTROLLED ELECTRICAL SWITCHES

BACKGROUND OF THE INVENTION

This invention relates to an alarm system incorporating magnetic switch means which may be installed for inexpensively guarding objects or articles of merchandise positioned on exposed shelves or counters of stores, supermarkets and the like. Furthermore, the alarm system of this invention may be installed for detecting the removal of one or each of a great number of merchandise articles form virtually any type of shelf, counter, rack or display and at virtually any location within the merchandising establishment. The switch incorporated in the alarm system of the present invention serving the article detecting function at each of the merchandise articles being guarded is of a positive magnetic action, inexpensive to provide and install, and may be formed with self-contained, antitampering features preventing unauthorized persons from surreptitiously frustrating the article removal detecting function thereof.

The steadily increasing problem of merchandise theft looses particularly in the more modern supermarkets, department stores, discount stores and the like is well known, and the same problems arise to a limited extent even in the smaller, older style establishments. Due to the high competition, the steadily increasing material and labor costs coupled with the ever-present customer demand for price reductions, the tendency is toward less and less hired clerk service to a customer and more and more customer self-service, so that clerks are only provided to assist in troubled situations and for merchandise shelf stocking, with the customers being permitted to gather a group of merchandise articles without attention and until paying for the same at central outlet locations. Even where the establishment is not of the normal self-service type, modern merchandising requires that a liberal number of merchandise articles be on display in positions readily accessible to the customers, increasing the opportunities for dishonest persons attempting thefts.

In the case of merchandise articles of small individual value, although of course not desirable, a certain amount of theft loss can be tolerated and furthermore, the incidence of theft thereof is diminished directly due to the small individual value. Where the real problems arise, is with articles of merchandise which are of relatively high-individual value, particular those of relatively compact form and easily concealable such as bottles of liquor, jewelry and certain sporting goods items. Despite the fact that these relatively expensive individual articles may be quickly removed form a shelf, counter or display and easily concealed, it is still necessary that a liberal number of such articles be exposed in accessible positions in order that the large majority of honest customers may examine the same and obtain the same under self-service conditions in order to complete the usual purchasing procedures.

One of the more obvious methods of combatting theft losses in merchandising establishments is to provide a reasonable number of employed clerks for the sole purpose of customer surveillance, such clerks visually observing customer actions. The employed persons carrying out this direct human customer surveillance must be reasonably trained and experienced so that the more likely of those persons bent of theft will be detected primarily through inordinate action thereof and either frustrated in their theft attempt or detained at the legally proper amount for prosecution, all of this being required while not disturbing the normal honest customers in their usual purchasing procedures. Thus, the use of employed clerks of human direct customer surveillance with the necessary skills and experience must be reasonably well compensated as well as reasonable in numbers in a given merchandising establishment so as to tend to counteract the overall efforts to reduce merchandising costs and supply the merchandise to the customers at a minumum of expense.

A relatively common, more sophisticated method of theft detection is quite frequently employed in relatively large, self-service merchandising establishments and that is one of closed circuit television customer surveillance. In the use of closed circuit television, television cameras are positioned at various locations about the merchandising establishment, in many cases fully exposed and readily observable by the customers. Such a surveillance system usually only requires a single central monitoring station at which is a single employee observer may maintain surveillance over a large number of divided establishment areas. Furthermore, the customers moving about in the establishment can, at the most, detect that there are television cameras positioned for observance and they are never able to determine whether such surveillance is actually taking place.

Although with closed circuit television surveillance, the expense of a large number of trained personnel is eliminated, the expense of installation and maintenance of such a system is still a prominent factor in merchandising expense. In addition, this installation and maintenance expense can only be tolerated, out of direct necessity, in the large merchandising establishments and is not feasible economically or otherwise for use in the smaller establishments even though the necessity there is just a prevalent. It is clear, therefore, that the need for a relatively inexpensive merchandise article surveillance and removal detection is a presently existing problem and that there is a longfelt want and need for solving the same.

OBJECTS AND SUMMARY OF THE INVENTION

It is, therefore, an object of this invention to provide an alarm system and method incorporating magnetic switch means wherein the alarm system may be relatively inexpensively fabricated and installed using common materials and workmen without greatly specialized skills, yet which maintains constant, effective, mechanical and electronic surveillance of selected merchandise articles and readily detects the removal thereof from a shelf or display location. According to the present invention, one of a series of separated switchs of extremely simplified form are installed on the same or separated merchandise article supporting shelf, counter, rack or display, each such switch being sensitive for movement to a nonelectrically transmitting condition when a merchandise article is positioned at that particular switch, and for movement automatically to an electrically transmitting position upon the particular merchandise article being removed. The switches, in turn, are electrically connected to a common or separate electrically actuated devices, such as alarms, lights or other signal or noise producing devices, so that electrically actuated device or devices are actuated by the merchandise article removals altering an authorized person to begin surveillance of those having the merchandise articles then in their possession to be sure that the proper checkout buying procedure is followed.

Thus, only an extremely limited number of personnel is required in order to maintain power surveillance over relatively wide areas of a merchandising establishment. Furthermore, by the proper choice of silent electrically actuated devices connected to the detecting switches, the fact that the merchandise article removal has been detected may be completely hidden and isolated from the person doing such article removal so that honest customers will be completely unaware of any surveillance, yet persons committing theft will be readily detected and apprehended. The present alarm system thereby provides inexpensive, effective surveillance required to minimize merchandise theft without the expense necessarily occasioned by the prior methods and apparatus, such as visual direct human surveillance or closed circuit television.

It is a further object of this invention to provide an alarm system having the foregoing characteristics and attributes which may be arranged with a proper selection of the electrically actuated device installed therein, to deter potential

merchandise article thefts without the necessity of actual apprehension of the person attempting to commit he theft. For instance, by electrically connecting the detecting switch with an audible electrically actuated device, such as a bell, buzzer or chimes, which is positioned relative to the detecting switch so as to be clearly audible by a person removing the particular merchandise article and causing the switch to actuate the audible alarm, a person originally intending theft and having the psychological factor of detection in mind will either replace the merchandise article or purchase the same in the conventional manner. At the same time, however, an ordinary customer with honest intentions will be unaffected by the audible alarm sounding because of the lack of guilt feelings and will proceed to purchase the merchandise article as such customer would ordinarily do.

It is also an object of this invention to provide an alarm system as hereinbefore set forth which is extremely versatile in installation and use, and may be adapted to the surveillance of merchandise articles of virtually any size and weight. The preferred form of the switch incorporated in the alarm system of the present invention is one which is positioned having an actuating member projecting upwardly through a merchandise article supporting surface when in electrically conducting conditions and depressed by the particular article through the weight thereof alone or in combination with added weight to a switch nonelectrically conducting condition. Thus, where surveillance is to be maintained over merchandise articles of reasonable weight, such as bottles of beverages or many sporting goods items, the detecting switches may be installed actionable merely through the inherent weight of the merchandise article and at any location in any number on virtually any type of shelf or platform or individual and multiple display rack. At the same time, when the merchandise article is of little inherent weight, such as articles of jewelry and the like, the detecting switch or switches may be provided with attractive individual platforms or article holders at the switch actuating member upper ends, the switch or switches being balanced to detect upon the removal of the light article from the individual platform or holder.

It is still an additional object of this invention to provide an alarm system of the foregoing type which is completely safe in operation and does not create a hazard to customers or employee personnel during their use of the shelves, racks and the like having the alarm system installed in conjunction therewith. The electrically actuated devices incorporated in the alarm system may be of the usual low-voltage type so that the alarm system overall may likewise only require electrical power of low voltage. Also, the use of electrical power within the main portion of the alarm system only takes place during actual indication and sounding of the alarm provided by the electrically actuated device so that the use of electrical power over a period of time is quite minor, again adding to the economy of the alarm system of the present invention.

Other objects and advantages of the invention will be apparent from the following specification and the accompanying drawings which are for the purpose of illustration only.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a fragmentary, top plan view of a conventional store or supermarket metal shelf having an embodiment of the alarm system of the present invention installed thereon for providing surveillance of a series of merchandise articles, such as bottles;

FIG. 2 is a fragmentary, front elevational view of the metal shelf of FIG. 1, specifically showing two alarm system switches retained in depressed position by bottles thereon free of electrically actuating an alarm of the system, and showing one of the alarm system switches in upwardly projecting position causing sounding of the system alarm as a consequence of a merchandise article having been removed from over said one switch;

FIG. 3 is an enlarged, fragmentary vertical sectional view looking in the direction of the arrows 3—3 in FIG. 2;

FIG. 4 is a view similar to FIG. 3, but looking in the direction of the arrows 4—4 in FIG. 2;

FIG. 5 is a fragmentary, horizontal sectional view looking in the direction of the arrows 5—5 in FIG. 3 including a somewhat diagrammatic showing of the electrical circuit of the alarm system of the present invention;

FIG. 6 is a vertical sectional view illustrating an example of platform mounted on a switch-actuating member removed from one of the alarm system switches of the present invention; and

FIG. 7 is a fragmentary, vertical sectional view of a gun rack illustrating the alarm system of the present invention installed therein.

BRIEF DESCRIPTION OF THE BEST EMBODIMENTS CONTEMPLATED

An embodiment of the alarm system and method of the present invention is shown in FIGS. 1 through 5 wherein the alarm system is shown installed in multiple switch form on a conventional metal, merchandise article supporting shelf generally indicated at 10 of the type frequently found in supermarkets, discount stores and the like. The shelf 10 serves as the article supporting member and has spaced upper and lower sides 12 and 14 with a series of spaced openings 16 formed between said upper and lower sides slightly rearwardly of a front, downwardly extending flange 18, said flange conventionally being covered by a decorative strip 20. With the preformed series of openings 16, the shelf 10 is perfectly adaptable for convenient mounting of a series of spaced, article surveillance switches generally indicated at 22 positioned spaced apart sufficient distances for individually supporting merchandise articles thereover, such as bottles 24 and 26 as shown.

Each of the switches 22 includes an actuating member 28 formed by a cylindrical center post 30 extending upwardly through one of the openings 16 to terminate upwardly in a flanged upper end 32 and terminate downwardly in a flanged lower end 34. The actuating member 28 also includes an annular washer 36 secured positioned overlying the flanged center post lower end 34 and for convenience in assembly, the actuating member 28 is preferably formed of separable, selectively threadably engaged halves as shown. Furthermore, and extremely important to the principles of the present invention, at least the actuating member center post 30 and the flanged upper end 32 thereof are formed of a nonmagnetically attracting material such as aluminum, or both of nonmagnetically attracting and nonelectrically conducting material such as one of the well-known plastics, but the washer 36 must be formed of both a magnetically attracting and electrically conducting material such as steel. In the alternative, and now shown, the actuating member center post 30 has its flanged upper end 32 could be formed of plastic so as to be nonmagnetically attracting and nonelectrically conducting, with the flanged lower end 34 with its threaded engagement into the center post formed of steel so as to be both magnetically attracting and electrically conducting, thereby eliminating the necessity of the washer 36 completely, all common expedients well known in the art.

Each switch 22 further includes a preferably permanent magnet block 38 secured to the shelf lower side 14 and having a vertical opening 40 formed therethrough slightly larger than the outer diameter of the actuating member centerpost 30 and aligned with the particular of the shelf openings 16. The magnet block 38 is preferably formed of a nonelectrically conducting or electrically insulating plastic impregnated with magnetic particles, such material being well known in the art, and with the shelf 10 formed of steel, the securement of the magnet block to the shelf lower side 14 may be purely through magnetic force, although if this mounting surface is nonmagnetically attracting, usual well-known adhesives or other securing means would be used. Thus, in relation to the shelf 10 and the magnet block 38, the actuating member 28 is positioned with the center post 30 projecting vertically movably

through one of the shelf openings **16** and the magnet block opening **40** with the actuating member upper end **32** overlying the shelf upper side **12** and the actuating member lower end **34** with its washer **36** underlying the magnet block.

The vertical dimensioning of the actuator member **28** is proportioned such that with the upper surface of the magnet block **38** secured to the shelf lower side **14** and the magnet block magnetically attracting the actuating member washer **36** upwardly against the magnet block lower surface simultaneously drawing the secured center post **30** and the actuating member lower end **34** upwardly, the actuating member upper end **32** will be positioned spaced above the shelf upper side **12**. Furthermore, when the actuating member upper end **32** is depressed downwardly against the shelf upper side **12**, the actuating member center post **30** will be moved downwardly moving the actuating member lower end **34** and the secured washer **36** to a position spaced downwardly and clear of the lower surface of the magnet block **38**. As will be hereinafter more apparent, the depressed position of the actuating member **28** may be considered the lower or first position, and the free or raised position may be considered the upper or second position, the depressed or first position being shown in FIG. **4** and the raised or second position being shown in FIG. **3**.

As best seen in FIGS. **3**, **4** and **5**, a pair of contact strips **42** of electrically conducting material, preferably metal foil such as aluminum, are secured spaced apart over the lower surface of the magnet block **38** and at opposite sides of the magnet block opening **40**, such contact strips preferably also extending continuously along the shelf lower side **14** continuously adjacent the series of shelf openings **16**. Except at the extensions of the contact strips **42** over the under sides of the magnet block **38**, the contact strips are secured to the shelf lower side **14** over appropriate insulating strips **44** so as to insulate the same from the metal shelf **10**, the insulating strips for convenience extending under the magnet block **38** between the magnet block and the shelf lower side **14** merely to augment efficiency in installation. In any event, the spacing and positioned of the contact strips **42** over the under side of the magnet block **38** is determined so that when the actuating member **28** is in its raised or second position as shown in FIG. **3**, the actuating member lower portion washer **36** underlies and upwardly contacts both of said contact strips, the combination of the actuating member lower portion washer **36** and the contact strips **42** thereby forming electrical contact means for the switch transmitting electrically energy or power therethrough when the actuating member is in its raised or second position and free of transmitting electrical energy or power therethrough when the actuating member is in its lower or depressed position as shown in FIG. **4**.

With the contact strips **42** extending continuously along the shelf lower side **14** over their insulating strips **44** from the switch magnet block **38**, these contact strips form a unique bus bar and permit a series of the switches, each having an identically arranged magnet block **38**, to be positioned spaced along the shelf **10**, all using the same contact strips **42** and insulating strips **44** as illustrated in FIGS. **1** and **2**. Furthermore, each of the switches will be connected electrically in parallel so that each of the switches may individually complete the electrical circuit through that particular switch actuating member **28** and the contact strips **42** upon that particular actuating member moving to its upper or second position. At appropriate locations along the contact strips **42**, in this case preferably at one end of the shelf **10**, the contact strips are electrically connected in circuit with a typical, low voltage, electrically actuated devices **46** and a transformer **48**, both shown diagrammatically electrically connected to the contact strips in FIG. **5**.

As hereinbefore discussed, the electrically actuated device **46** may be of any usual low-voltage type which can effectively act as an alarm to visually or audibly signal a person charged with surveillance thereof that a merchandise article removal has been detected, for instance, audibly signalling electrically actuated devices could include a bell, buzzer or chimes, or even a recording system playing music or transmitting a message, and visually signalling electrically actuated devices could include various forms of lights. The transformer **48** can be connected to the usual electrical power lines of the merchandising establishment and will reduce the voltage to the lower voltage required for the alarm system. In order to be certain that proper electrical power is maintained within the alarm system during use thereof, it is preferred to provide the positive ground connection between the contact strips **42** and the transformer **48**, although in certain instances, it is possible to merely establish the ground directly through a separate ground connection, such as through the metal shelf **10** and to the ground through a cement floor.

Thus, in one of the alarm system of the present invention as shown in FIGS. **1** through **5** and thus far described, the switches **22** may be installed at the desired locations along the shelf **10** and as long as the bottles **24** and **26** are positioned on the shelf, the actuating members **28** of their associated switches will be retained din their depressed or first positions merely through the weights of the bottles and electrically actuated device **46** will not be electrically actuated by those particular switches. If, however, one of the bottles **24** or **26** is removed from the shelf **10**, the magnet block **38** of that particular switch **22** will magnetically attract the particular actuating member **28** upwardly to its raised or second position and cause electrical actuation of the electrically actuated device **46**. As shown in FIGS. **1**, **2** an **4**, the switches **22** beneath the bottles **24** and **26** are in their depressed or first positions and will not cause actuation of the electrically actuated device **46**, while the switch to the left of the bottle **26**, as additionally shown in FIG. **3**, is in its raised or second position and will cause actuation of the electrically actuated device.

As particularly shown in FIGS. **3**, **4** and **5**, in order to prevent tampering with the switches **22** and their contact strips **42**, a generally channel-shaped cover generally indicated at **50** may be provided extending continuously along the shelf **10** and where formed of metal, primarily retained in place by the magnetic attraction of the magnet blocks **38**, or where formed of nonmagnetically attracting materials such as plastic, retained in place by usual fasteners. As an added feature of the alarm system of the present invention, however, and compatible with the unique construction of the switches **22**, the cover **50** may be formed with a horizontally inwardly projecting flange or tab **52** at least at each of the switch magnet blocks **38** and installed underlying the magnet blocks, that is, between the magnet blocks and the shelf lower side **14** wen the cover is in place. The flanges or tabs **52** could be appropriately separately installed connected to the cover **50** at the location of the switches **22**, but in any event, with the magnet blocks **38** secured to the metal shelf lower side **14** through magnetic attraction, any unauthorized attempted removal of the cover **50** will cause a tilting of the magnet blocks **38** and their associated actuating members **28** somewhat in the manner partially shown in FIG. **4**, such tiling of both the magnet blocks and their associated actuating members bringing the washers **36** against the contact strips **42** just as if the actuating members had normally moved upwardly to their free upper or raised positions so as to electrically actuate the electrically actuated device **46** detecting such attempted tampering with the alarm system.

To further illustrated the versatility of the alarm system of the present invention, in FIG. **6** an actuating members **54** is shown having a typical merchandise article retaining platform **56** secured to a flanged upper end **58** of said actuating member, the remainder of the particular switch being the same as before and the installations being the same or as an individual switch installation. With the actuating member **54** having the platform **56** permanently secured thereon, the balancing between the magnetic force of the magnet block (not shown) and the actuating member will be closely balanced so that only slight weight is required on the platform **56** to overcome the magnetic attraction of the actuating

member and move the actuating member and platform downwardly, and removal of such slight force causing the actuating member to move upwardly and complete the switch electrical circuit. Thus, an alarm system switch of the present invention having the actuation member 54 and the platform 56 may be used to hold any lightweight article, such as articles of jewelry and the like, the switch maintaining a surveillance on the particular merchandise article and detecting when the same is removed from the platform so that the person removing the same can be observed to be sure that the proper purchasing procedure is followed.

In FIG. 7, the alarm system of the present invention is illustrated for use with a gun rack generally indicated at 60 having a rifle 62 positioned thereon with a stock of the rifle resting on and depressing a switch 64 at a supporting platform 66 of the gun rack. While the rifle 62 is positioned on the gun rack 60, the switch 64 will be retained in its depressed or first position free of actuating the alarm system electrical circuit (not shown) and free of actuating the electrically actuated device (not shown) of said alarm system. When, however, the rifle 62 is removed from the gun rack 60, the switch 64, as previously described, is magnetically moved to its upper or second position completing the electrical circuit and actuating the electrically actuated device. In this manner, the alarm system of the present invention provides continuous surveillance of the rifle 62 and immediately detects the removal thereof from the gun rack 60, all in an efficient and positive manner, again illustrating the wide versatility of such system.

According to the principles and disclosures of the present invention, therefore, an alarm system and method incorporating magnetic switch means is provided which efficiently carries out surveillance over virtually any form of merchandise article in a merchandising establishment and detects removal of such merchandise articles form their normal positions of display by actuating any chosen form of low-voltage alarm, either visible or audible. As clearly illustrated and described, the unique alarm system is extremely positive in operation making use of a simplified form of magnet switch and may be installed in single or multiple units, the wide versatility thereof meeting virtually any circumstances and conditions encountered in both large and small merchandising establishments. Despite the marked advantages, wide versatility and reliability, the overall alarm system of the present invention may be fabricated and installed at an extremely low cost and will produce long term cost savings by greatly reducing the incidence of merchandise article theft.

We claim:

1. In an electrical switch of the type for installation with a supporting member having spaced upper and lower sides with an opening extending generally vertically therebetween; said electrical switch including an actuating member extending through said supporting member opening movable between an upper and lower position, magnetic means in the form of a permanent magnet positioned at said supporting member lower side adjacent said actuating member actionable between said actuating member and said supporting member normally urging through magnetic force said actuating member to said upper position and permitting movement of said actuating member to said lower position while still maintaining said magnetic upward urging upon a downward force thereon sufficient to counteract said magnetic force upward urging, said actuating member being normally free of urging to said upper position other than by said magnetic force upward urging, said actuating member having an upper end portion at said supporting member upper side positioned engageable by an object at said supporting member upper side and forcing said actuating ember from said upper to said lower position when said object is of sufficient weight to counteract said magnetic force upward urging of said magnet, electrical contact means operably connected to said actuating member normally free of transmitting electrical energy therethrough when said actuating member is in said lower position and transmitting electrical energy therethrough when said actuating member is in said upper position, and cover means mounted normally covering said magnet and at least a part of said electrical contact means and a part of said actuating member at said electrical contact means, said cover means being constructed and arranged relative to said electrical contact means and said actuating member for causing said electrical contact means to transmit said electrical energy therethrough upon displacement of said cover means during an attempted removal of said cover means from its covering position.

2. An electrical switch as defined in claim 1 in which said electrical contact means is mounted in association with said magnet subject to transmitting said electrical energy therethrough upon an attempted movement of said magnet downwardly away from said supporting member lower side; and in which said cover means is normally positioned covering said magnet and at least a part of said electrical contact means and a part of said actuating member at said supporting member lower side, said cover means in said normal position having a portion thereof engaged between said magnet and said supporting member lower side for movement by said cover means of said magnet downwardly away from said supporting member lower side upon displacement of said cover means during an attempted removal of said cover means form its covering position casing said electrical contact means to transmit said electrical energy therethrough.

3. In a magnetic switch, the combination of: an actuating member movable between a first and second position, magnetic means positioned actionable on said actuating member constantly urging through magnetic force said actuating member to said second position and permitting movement of said actuating member to said first position while still maintaining said magnetic urging toward said second position upon a force thereon sufficient to counteract said magnetic force urging, said actuating member being normally free of urging to said second position other than by said magnetic force urging; electrical contact mans operably connected to said actuating member normally free of transmitting electrical energy therethrough when said actuating member is in said first position and transmitting electrical energy therethrough when said actuating member is in said second position; said magnetic means being a permanent magnet having an opening formed therethrough between opposite sides thereof; and said actuating member being positioned extending through and freely movable within said magnet opening and having opposite end portions projecting beyond said magnet opposite sides, said actuating member being formed of a magnetically nonattracting material except for at least a part of one of said end portions, said end portion being formed of magnetically attracting material.

4. A magnetic switch as defined in claim 3 in which said actuating member one end portion forms a part of said electrical contact means and is capable of transmitting electrical energy therethrough; and in which said electrical contact means includes spaced metal strips formed of an electrically conducting material positioned simultaneously engaged by said actuating member one end portion upon said actuating member being moved to said second position and at least one of said metal strips being free of engagement by said actuating member one end portion upon said actuating member being moved to said first position.

5. A magnetic switch as defined in claim 3 in which said actuating member is formed of a magnetically nonattracting material except for a part of one of said end portions, said actuating member one end portion part being formed of magnetically attracting material, said actuating member one end portion part being flanged and being formed of a material capable of transmitting electrical energy therethrough forming a part of said electrical contact means; and in which said electrical contact means includes spaced metal foil strips mounted on said side of said magnetic means adjacent said actuating member one end portion part, said metal foil strips being positioned relative to said actuating member one end portion part simultaneously engaged by said one end portion

part when said actuating member is moved to said second position and at least one being free of engagement by said one end portion part upon movement of said actuating member to said first position.

6. In an electrical switch of the type for installation with a supporting member having spaced upper and lower sides with an opening extending generally vertically therebetween; said electrical switch including an actuating member extending through said supporting member opening movable between an upper and lower position, magnetic means positioned actionable between said actuating member and said supporting member normally urging by magnetic force said actuating member to said upper position and permitting movement of said actuating member to said lower position while still maintaining said magnetic upward urging upon a downward force thereon sufficient to counteract said magnetic force upward urging, said actuating member being normally free of urging to said upper position other than by said magnetic force upward urging, said actuating member having an upper end portion at said supporting member upper side positioned engageable by an object at said supporting member upper side and forcing said actuating member from said upper to said lower position when said object is of sufficient weight to counteract said magnetic force upward urging of said magnetic means, electrical contact means operably connected to said operating member normally free of transmitting electrical energy therethrough when said operating member is in said lower position and transmitting electrical energy therethrough when said actuating ember is in said upper position, said magnetic means including a permanent magnet positioned at said supporting member lower side, said electrical contact means including spaced electrically conducting metal foil strips at a lower side of said magnet, said actuating member projecting upwardly though said magnet and said supporting member opening, said actuating member being formed of a magnetically nonattracting material except for a lower end portion thereof positioned beneath said magnet lower side, aid actuating member having a portion thereof forming a part of said electrical contact means positioned engaged between said contact means spaced foil strips establishing electrical contact therebetween when said actuating member is in said upper position and normally being free of contacting at least one of said contact means spaced foil strips when said actuating member is in said lower position.

7. An electrical switch as defined in claim 6 in which said electrical switch is one of a series of said electrical switches including at least two; in which said electrical switches are mounted in association with separate openings in said supporting member; in which each of said electrical switches includes a permanent magnet forming said magnetic means positioned at said supporting member lower side adhering to magnetically attracting metal of said supporting member lower side solely through magnetic attracting therebetween, an opening though said magnet generally aligned with said supporting member opening, said actuating member extending through said supporting member opening and said magnet opening, said actuating member being of a magnetically nonattracting material except for a lower portion thereof positioned below said magnet, and in which said electrical contact means of said electrical switches includes a pair of spaced electrically conducting metal foil strips extending along lower surfaces of said magnets at opposite sides of said actuating members and continuously between said electrical switches on said supporting member lower side, parts of said actuating member lower portions projecting beneath said metal foil strips movable into engagement between said spaced metal foil strips when said actuating members are moved to said upper positions, said parts of said actuating member lower portions transmitting electrical energy therethrough between said metal foil strips when in engagement therewith.

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