

Oct. 17, 1950

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SIGNAL RELAY SWITCH
Filed March 26, 1946

2,525,930

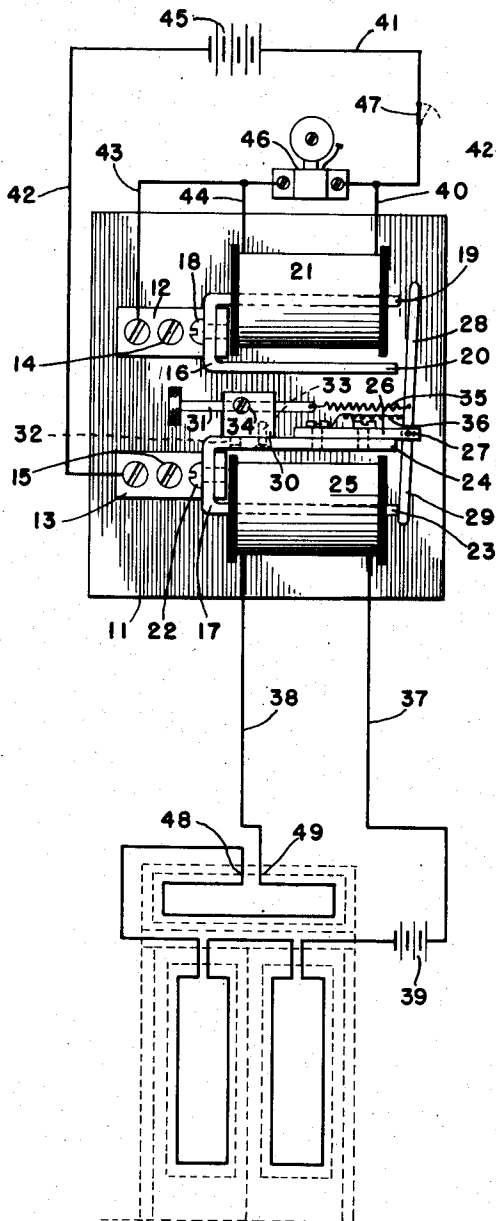


FIG. 1.

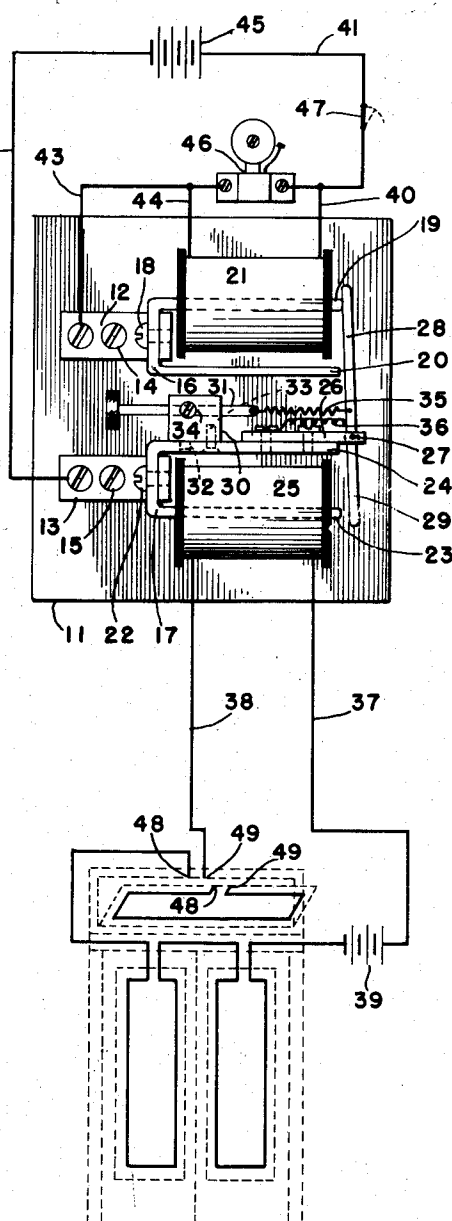


FIG. 2.

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2,525,930

SIGNAL RELAY SWITCH

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Application March 26, 1946, Serial No. 657,166

1 Claim. (Cl. 200—98)

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This invention relates to improvements in relay switches for alarm signal systems and electrical circuits therefor.

One object of my invention is the provision therein of a magnetically activated armature for controlling a main and a secondary circuit of a signal system in which an electrically operated alarm or signal is provided.

Another object of my invention is the provision therein of a pivotly mounted armature operable through the medium of alternatively activated dual magnetic units to close a secondary electrical circuit.

Another object of my invention is the provision therein of means to close a secondary circuit when a main or primary circuit is opened, thereby activating an alarm device.

A still further object of this invention is the provision of an organization in which the constituent elements are so arranged structurally and functionally as to assure improved results with materials and members which may be manufactured at reasonable cost, may be easily assembled and which will be efficient in operation with minimum wear to the parts.

This invention possesses other objects and features of advantage, some of which, with the foregoing will be set forth in the following description and in the claim wherein parts will be identified by specific names for convenience, but they are intended to be as generic in their application to similar parts as the art will permit. In the accompanying drawings there has been illustrated the best embodiment of the invention known to me, but such embodiment is to be regarded as typical only of many possible embodiments, and the invention is not to be limited thereto.

The novel features considered characteristic of my invention are set forth with particularity in the appended claim. The invention itself, however, both as to its organization and its method of operation, together with additional objects and advantages thereof, will best be understood from the following description of a specific embodiment when read in connection with the accompanying drawings, in which:

Figure 1 is a view showing the units of my device mounted upon the base member of an enclosing cabinet (not shown), and showing electrical conductor connections in combination with a door and transom unit, and

Figure 2 is a similar view but showing a broken main electrical circuit.

In both Figures 1 and 2 the door and transom unit is outlined by the dotted lines.

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Referring in detail to the parts, 11 designates the base member of an enclosing cabinet and is made of any suitable insulating material. L-shaped metal bracket members 12 and 13 are secured to the said base member 11 by means of screws 14 and 15 respectively. To the angular ends of the said brackets 12 and 13 there are secured U-shaped members 16 and 17 respectively. The U-shaped member 16 is secured to the bracket 12 by means of the screw 18 and comprises two prongs 19 and 20. The prong 19 is adapted to hold thereon a coil 21 which causes the prong 19 to become a magnet when the said coil is electrically energized.

The U-shaped member 17 is secured upon the bracket 13 by means of a screw 22, and comprises two prongs 23 and 24. The prong 23 carries a coil 25, which causes said prong 23 to become a magnet when the coil 25 is electrically energized.

Upon the prong 24 there is suitably attached a projecting arm 26, which carries, pivotly attached to 27 upon the outer end thereof, an armature having a long leg 28, and a short leg 29.

A block 30, carrying a slideably adjustable bar 31, is mounted upon the prong 24, and is held thereon by means of a pin 32, and screws 33. The said adjustable bar 31 may be securely held in any desired position by means of a set screw 34. A spring 35, is attached between the ends of the said adjustable bar 31, and to the long leg 28 of the said armature. An electric conductor wire 36 is soldered or otherwise secured to the long leg 28 of the armature and to one of the screws which hold the projecting arm 26 to the said prong 24.

Electric current is supplied to the coil 25 by means of conductors 37 and 38, which electrically connect same to a battery 39. Electric current is supplied to the coil 21 by means of conductors 40, 41, 42, 43 and 44 when the armature is in the position shown in Figure 2, thereby closing an electric circuit including the battery 45. An electrically operated alarm or signal 46 may be interposed, in parallel, between the conductors 40 and 44.

The conductor 38 may be carried through, and upon a door and transom as shown. The said door and transom are indicated by dotted lines in both figures. A switch 47, is interposed in the conductor 40 of the secondary or auxiliary circuit and is normally closed to operate the secondary circuit.

Operation

The device is used in an electric signal system in which the electrical conductors are wired

through or upon windows, doors or any portion of a room, building or receptacle which it is desired to protect against unauthorized entry.

In Figure 1, the wiring or electric conductors are shown passing through or upon doors, transoms or glass panels indicated by dotted lines, and wherein the said doors and transoms are shown in closed position, and the conductor 38 makes contacts at all joints between the movable member and the frame.

In the said closed position, an electric current is established in the primary or main circuit, which includes the battery 39, the conductor 37, the coil 25 and the conductor 38, which leads back to the battery 39. The circuit thus established energizes the coil 25, to produce a magnetic attraction through the prong 23, which attraction in turn draws and holds to it the short leg of the armature 29. As long as the circuit just described is closed or unbroken the short leg 29 of the armature is held in contact with the end of the magnetized prong 23. When, however, the circuit is broken by cutting or breaking the conductor, or by opening a door or transom as shown by the dotted lines in Figure 2, the break occurs at 48 and 49 at which time the coil 25 is deenergized and releases the short leg 29 of the armature. The spring 35 then acts to pull the aforesaid long leg 28 of the armature so that electrical contact is made at the end of the prong 19. The secondary or constant circuit is now closed and an electrical current is established through the armature contact with the prong 19, the bracket 12, the conductor 43, the alarm device 46, the conductor 41, across the switch 47, through battery 45, the conductor 42, the bracket 13, the prong 24 and the conductor 36 to armature leg 28.

Branch conductors 40 and 44 extending from the conductors 41 and 43 connect with the coil 21 to electrically energize same and magnetize the prong 19 to attract and "freeze" or lock the long leg 28 of the armature against same, until released by opening switch 47.

The electric circuit thus established will cause a current to flow through the alarm 46 to activate same, the switch 47 being in closed position.

Upon closing the transom, the contacts 48 and 49 will reestablish the main electric current to energize the coil 25 but will not pull the short leg 29 of the armature into contact with the end

of the prong 23 until switch 47 is in the "off" position, thus breaking the secondary or constant circuit to stop sounding of the alarm 46. In lieu of a bell as shown, a signal light or other sounding device may be employed.

I claim:

In a signal relay switch, comprising a base member of insulating material, a pair of supporting brackets attached thereto, pronged members secured to and extending from said brackets, a magnetic coil upon a prong of each of said pronged members, and arranged in parallel relation to one another, an armature pivotally attached to the end of the prong of one of the said pronged members in juxtaposition to its attached relay coil, the said relay coil being adapted, when electrically energized, to hold the said armature in contact with its core, a rod slidable upon a block attached to the free prong of said pronged member, a spring attached to and between the said slidable rod and pivoted armature to urge the said armature out of contact with one of the relay cores when same is deenergized and bring the opposite end of said armature into contact with the prong core of a second relay and close a circuit through said second relay core.

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