ALARMSYSTEM AND SWITCH MEANS

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This invention relates to an alarm system and switch means and more particularly to an alarm system and switch means which comprises a novel switch means having a lock operable from the exterior of an enclosure to set an alarm circuit which may also be manually set or shut off by manually operable means internally of the enclosure which manually operable means also controls the same switch connected to the lock externally of the enclosure.

Conventional burglar or fire alarm systems are generally complicated in proportion to their function and require a plurality of controls operable by the proprietor of an enclosure for the setting of the system for operation and also for the indication thereof upon entrance of the proprietor into the enclosure protected by such systems.

Accordingly, it is an object of the present invention to provide an alarm system and switch means which is very simple to install and operate in connection with and for the protection of an enclosure such as a dwelling, a shop, warehouse, or other property.

Another object of the invention is to provide an alarm system and switch means comprising a novel lock and switch assembly which is provided with a frame having inner and outer ends; the outer end of the frame supporting a lock; the inner end of the frame supporting a manually operable means whereby the lock may be actuated from the outside of an enclosure; the manually operable means may be operated from the inside of an enclosure and a switch means supported by the frame may thus be operated from either the inside or the outside of an enclosure in order to set the same in circuit with an alarm system.

Another object of the invention is to provide an alarm system and switch means comprising a novel switch means which is very readily and easily installed in the wall of an enclosure so that the outer end of the switch means communicates with the outside of the wall and the inner end of the switch means communicates with the inner side of the wall in order to provide for operation of a common switch means from either the inside or the outside of said wall.

Another object of the invention is to provide a switch means having a frame supporting a lock at one end and having a manually operable means at the other end thereof and switch means connected with movable means of said lock and movable means of said manually operable means so that an alarm circuit coupled to said switch means may be set by operation of said lock externally of said enclosure and whereby the switch means may be operable independently of the lock from a position internally of an enclosure.

Another object of the invention is to provide a switch system and switch means having a very versatile electrical circuit comprising means responsive to the breaking and entering of an enclosure through various avenues such as doors and windows and additionally to provide for activation of an alarm in response to other hazards such as fire and/or malfunction of water conduits to indicate leaks therefrom.

Another object of the invention is to provide an alarm system and switch means which is provided with a lock actuated switch structure in circuit with an alarm system and a light internally of an enclosure, whereby a proprietor in possession of a key to the lock may activate the lock to de-energize the alarm system and auto-
matically turn on a light internally of the enclosure so that the proprietor may enter the enclosure under illuminated conditions.

Another object of the invention is to provide an alarm system and switch means having circuitry having a conventional alternating current supply coupled with means automatically to substitute a standby direct current power supply in the event the alternating current supply fails.

Another object of the invention is to provide an alarm system and switch means comprising circuitry wherein energization of an alarm causes actuation of a locking switch which includes contacts which remain locked once the circuit is energized so that the alarm continues to operate even though the switch which initiates the alarm is subsequently opened after the alarm has been activated.

Another object of the invention is to provide an alarm system and switch means comprising a switch assembly including a unitary frame supporting a lock at the outer end of an enclosure and a manually operable means at the inner end of an enclosure and wherein switch means is operably connected to the lock and the manually operable means; said switch means comprising rotary elements thereby permitting the frame of the assembly to be a simple cylindrical member and whereby all of the elements of the switch means including the lock and the manually operable means may be very compact rotary structures.

Another object of the invention is to provide an alarm system and switch means which automatically turns on the lights in an enclosure when a burglar activates the alarm system.

Another object of the invention is to provide an alarm system wherein electrical circuit means includes a delay action emergency switch which may be operated by a person who is confronted with a burglar for example, whereby the alarm, coupled with the circuit, sounds or is given subsequent to any movement or action by the person being held up, thereby alleviating suspicion of the hold-up man relative to the person being held up when operation of the alarm is initiated.

Another object of the invention is to provide an alarm system wherein circuitry is provided automatically to dial a telephone coupled to a fire or police department in case of a fire or a burglar in a dwelling, enclosure or about other property.

Further objects and advantages of the invention may be apparent from the following specification, appended claims, and accompanying drawings, in which:

FIG. 1 is a longitudinal sectional view of the switch means of the invention showing parts and portions thereof in elevation to facilitate the illustration;

FIG. 2 is a transverse sectional view of the switch means taken from the line 2—2 of FIG. 1;

FIG. 3 is a transverse sectional view of the switch means taken from the line 3—3 of FIG. 1;

FIG. 4 is a transverse sectional view of the switch means of the invention taken from the line 4—4 of FIG. 1;

FIG. 5 is an end elevational view of the switch means of the invention taken from the line 5—5 of FIG. 1; and

FIG. 6 is a diagrammatic view of the electrical circuit means utilized in connection with the switch means of the invention and showing elements of said switch means relative thereto.

As shown in FIG. 1 of the drawings, the switch means of the invention comprises a cylindrical frame member 10 having an outer end 12 and an inner end 14. The outer end 12 is disposed to communicate with the outside of an enclosure such as a building room or the like while the inner end 14 of the frame 10 is disposed
to be at the inner side or inner wall surface of a building room or an enclosure. This frame 10 as shown, for example, is a circular in cross-section tubular member, however, this frame may be of any other cross-sectional structure, as desired, for the purpose of accomplishing the intended uses as will be hereinafter described.

Adjacent the outer end 12 of the frame 10 is a circular flange 16 which is integral with the frame. This flange 16 is disposed to bear upon an outer surface of a building wall or the like as indicated by a broken line A, in FIG. 1 of the drawings.

Surrounding the inner end 14 of the frame 10 is a flange member 18 which is removably secured to the outer side of the frame 10 by means of a set screw 20. This flange member 18 is disposed to bear against an inner wall surface, as indicated by a broken line B in FIG. 1 of the drawings. This inner wall surface B is intended to be the inner wall surface of a room or enclosure to be protected by the alarm system and switch means of the invention.

It will be seen that the inner end 14 of the frame 10 is a straight cylindrical portion and that the flange member 18 is provided with a cylindrical extension 22 whereby the flange 18 may be telescopically mounted on the end 14 of the frame 10 at any location longitudinally thereof, in accordance with the cut off length of the frame 18.

It will be understood that the cut off length of the frame 10 may be arranged in accordance with the thickness of a wall between the broken lines A and B, as shown in FIG. 1 of the drawings. Thus, the frame 10 may be cut off at its end 14 with a hacksaw or the like or may be cut off shorter than its length, as shown in FIG. 1 of the drawings, to accommodate the extension thereof through a wall which is thinner than that indicated between the broken lines A and B.

For purposes of facility, in the cutting of the frame 10 to proper length, the flange 18 is provided with a recess surface 24 which may be used on initial installation for the purpose of establishing a cut off length of the frame 10, for example, the frame 10 may first be inserted through an opening in a wall and the flange 18 may be slidably positioned over the frame whereupon the frame 10 may be scribed at a position coinciding with the recess surface 24. The frame 10 may then be cut off at the scribe mark to establish the disposition of its end 14.

The flange 18 may then be fixed on the frame 10 by tightening the set screw 20.

A tumbler lock 26 is fixed in the outer end 12 of the frame 10 in the conventional manner and a key 28 is removably disposed in the tumbler 26 to cause rotary action of its rotating portion 30 to which a substantially square in cross-section shaft 32 is connected.

Positioned in the end 14 of the frame 10 is a switch mechanism retaining cylinder 34. This cylinder 34 is a hollow tubular member having an enlarged flanged end 36 secured to the flange 18 by means of screws 38. The flange 36 rests adjacent the recess surface 24 and the periphery of the flange 36 is disposed in the recess inwardly of the periphery of the flange 18.

Outwardly of this flange 36 is a dial plate 40 which is secured in a recess 42 in the flange 18 whereby a face portion 44 of the dial 40 is flush with the normally inaccessible face of the flange 18.

The flange 36 and 40 are provided with respective central openings 46 and 48 through which a stub shaft 50 of a switch bridge member 52 extends.

A dial knob 54 is secured to the stub shaft 50 by means of a set screw 56 and this dial knob operates adjacent to the face 44 of the dial plate 40.

The bridge switch member 52 is provided with a pair 70 of bridge contacts 58 and 60 which are insulated therefrom in a block of electrical insulation 62.

As shown in FIG. 4 of the drawings, these bridge contacts 58 and 60 are arcuate and extend only a few degrees of an arc disposed about the center 64 of the shaft 32 of which is centered in a central bore 66 within the bridge contact member 52. This bore 66 inscribes the square in cross-section shaft 32 and permits it freely to rotate therein.

It will be seen that the bridge contact member 52 is freely rotatably mounted in the cylindrical portion 34, as hereinafter described.

Mounted on the shaft 32 and internally of the cylindrical member 34 is a switch rotor member 70. This switch rotor member 70 is provided with a pair of contacts 72 and 74, as shown in FIG. 3 of the drawings. Each of these contacts 72 and 74 is composed of a pair of conductors spring loaded toward opposite ends of the switch rotor 70. These contacts are coupled to a primary winding disposed about the shaft 32, so that they are maintained firmly in contact with one of the bridge portions 58 or 60, hereinafter described, or may be therebetween and in contact with the insulation member 62, depending upon the functional disposition of the switch.

The contact member 72, for example, employs a compression spring 76 between adjacent contact portions 78 and 80 for urging them in opposite directions. The construction of the switch contact 74 is substantially the same.

A pair of bearing contacts 82 are held in the switch rotor 70 and project axially in parallel relation to the contacts 72 and 74. These bearing contacts 82 are composed of electrical insulation 84 and 86 which are electrically connected to the contacts 72 and 74 and 88 and 90 of a switch stator 88 which is fixed in the tubular member 34.

It will be seen that the switch rotor 70 is composed mainly of electrical insulation and that it is provided with a square in cross-section opening 91 which intimately fits the cross-sectional shape of the shaft 32 so that the switch rotor rotates with the shaft 32. The switch stator 88 being fixed in the tube 34 is provided with electrical conductors 90, 92, 94, and 96 connected to the contacts 84 and 86, as will be hereinafter described in detail. The contacts 84 and 86 are electrical conductors and project inwardly from a contact face 98 of the switch stator. This stator 88 is made of electrical insulation so that when the contacts 72 and 74 of the switch rotor 70 are rotated out of engagement with the contacts 84 and 86 that said contacts 72 and 74 engage only electrical insulation in accordance with the showing in FIG. 2 of the drawings. As indicated by broken lines C in FIG. 2 of the drawings, the contacts 72 and 74 may be rotated in a clockwise direction, as shown in FIG. 2 of the drawings, into the broken line position C.

It will be appreciated that in this position C the contacts 72 and 74 contact insulation material of the switch stator and that the shaft 32 is freely rotatable in a bore 99 of the stator so that it remains stationary while the switch rotor 70 is freely rotatable.

It will be appreciated that the rotating element 30 of the tumbler lock 26 may be rotated 180 degrees so that the contacts 72 and 74 may engage either the pair of contacts 84 or the pair of contacts 88 held by the switch stator 88.

The manual control knob 54 is manually rotatable from the inside of an enclosure and is provided with a detent 102 engageable with either of two recesses 104 or 106 disposed at the on or off positions on the dial face 44. Thus, the switch rotor 70 may be operated from the outer side of an enclosure by the key 28 while the contacts 84 and 86 may be manually moved from the inner side of a building wall or enclosure relative to the contacts 72 and 74, as desired.

As shown in FIG. 6 of the drawings, a conventional 110 volt alternating current power supply is coupled of lines 108 and 110 which are coupled to a primary winding 112 of a transformer 114 having a secondary winding 115. Conductors 118 and 120 are coupled to the lines 110 and 112 to energize a holding coil 122 which is pro-
vided with a spring loaded core 124. This spring loaded core 124 tends to move in the direction of an arrow D when the coil 122 is de-energized due to a power failure or the alternating current supply conducted by the conductors 108 and 110. Coupled to the spring loaded core 124 are movable contacts 126 and 128 disposed to unconnect the lines 108 and 110 when the core 124 is moved in the direction of the arrow D by its spring loaded mechanism. Concurrently, contacts 130 and 132 are actuated by the spring loaded core 124 from an open position to a closed position in order to couple conductors 134 and 136 to conductors 138 and 140, respectively. A battery 142 is coupled to the conductors 134 and 136 and serves as an alternate to the power supply provided by the alternating current conductor lines 108 and 110.

Coupled to the secondary winding 116 of the transformer 114 are conductors 144 and 146 to which the conductors 138 and 140 respectively, are coupled. Thus, the battery 142 may serve to provide an alternate source of power in the event the secondary winding 116 is de-energized due to a power failure of the alternating current supply.

Coupled to the conductor 146 is the conductor 90, as hereinbefore described, which is connected to one of the contacts 84, hereinbefore described. The conductor 92 is connected to the other of the contacts 84 and coupled to this conductor 92 is a further conductor 148 which is connected to one end of a solenoid actuator 150 which is disposed to close the contact 152 and energize a light 154 as will be hereinafter described.

Coupled to the opposite end of the coil 150 is a conductor 156 which is connected to the conductor 138 and the conductor 144, hereinbefore described. The conductor 92 is coupled to one end of a buzzer coil 158 and connected to the opposite end of this buzzer coil 158 is the conductor 96, hereinbefore described. This conductor 96 is coupled to one of the contacts 86 and the conductor 94 is connected to the other one of a pair of contacts 86, hereinbefore described.

An emergency light 174 is provided with a conductor 176 coupled to the conductor 138 and in electrical connection with the conductor 144, as hereinbefore described. Another conductor 178 of the emergency light 174 is connected to the conductor 94, hereinbefore described, so that when any one of the switches 159-170 is closed the emergency lamp 174 will be energized. A conventional thermally responsive time delay means 171 controls closing of the emergency switch 170, as will be hereinafter described. Additionally, in the case of these switches may be a fire responsive switch, another may be responsive to water flow in the plumbing connected with or adjacent to the enclosure protected by the present invention.

Coupled to all of these switches 159-170, inclusive, is a conductor 172 which is connected to the conductor 146, hereinbefore described.

An emergency light 174 is provided with a conductor 176 coupled to the conductor 138 and in electrical connection with the conductor 144, as hereinbefore described. Another conductor 178 of the emergency light 174 is connected to the conductor 94, hereinbefore described, so that when any one of the switches 159-170 is closed the emergency lamp 174 will be energized. A conventional thermally responsive time delay means 171 controls closing of the emergency switch 170, as will be hereinafter described. Additionally, in the case of these switches may be a fire responsive switch, another may be responsive to water flow in the plumbing connected with or adjacent to the enclosure protected by the present invention.

A spring loaded contact arm 192 is responsive to magnetic energy of the solenoid 188 and is disposed to be energized and held by a spring loaded latching contact 194 when the coil 188 is energized. The arm 192 is coupled to a conductor 196 which is connected to the conductor 94 while the latching contact 194 is coupled to a conductor 198 connected to the hereinbefore described conductor 146.

A reset solenoid 200 is disposed to release the latching contact 194 from the arm 192 permitting it to spring upwardly into the position as shown in FIG. 6 of the drawings, said solenoid 200 when energized thus attracts the latching contact 194 and releases the contact arm 192, as will be hereinafter described.

Coupled to one end of the coil 200 is a conductor 202 connected to a reset control switch 204 with which a conductor 206 is coupled. This conductor 206 is connected to the conductor 144, hereinbefore described.

Coupled to the opposite end of the coil 200 is a conductor 210 which is coupled to the conductor 198 and the conductor 146, hereinbefore described.

Operation of the alarm system and switch means of the invention is substantially as follows:

As shown in FIGS. 1 and 6 of the drawings, the alarm system and switch means is set so that an alarm will be sounded in case any of the switches 159-170, inclusive, are operated. For example, the switch means shown in FIG. 1 of the drawings, extending through a wall between the broken lines A and B is disposed to control the circuitry in which the switches 159-170, inclusive, are coupled and these switches, as hereinbefore described, may activate the alarm circuit when the enclosure is disturbed by some persons breaking and entering, or when a fire starts therein or in the event of a leak in the water supply system adjacent the enclosure. Additionally, one of these switches may be used by a person as an emergency switch, as will be hereinafter described.

In the position as shown in FIG. 1 of the drawings, the contacts 86 are coupled by means of the contact 70 and the bridging contact 88.

Under these conditions, the alarm circuit and switch means of the invention is in an "on" position, as indicated in FIG. 5 of the drawings, and in this position, the enclosure or dwelling may be unoccupied by the proprietor who utilizes the key 20 as he leaves the premises to set the tumbler of the lock 26 and the rotating mechanism 30 thereof, in the position as shown in FIG. 1 of the drawings. Having left the switch mechanism in this position, the operation of any of the switches 159-170, inclusive, will cause the closing of the alarm circuit to energize the automatic dialing telephone 182, the buzzer 158 and the solenoid 188 which latches the contacts 192 and 194 together to provide for a continuous operation of the alarm circuit until released by the reset solenoid 200 as energized manually through the switch 204 to pull the contact 194 out of latching position and to thereby release the spring loaded contact 192.

The switch 170 is provided with a thermal time delay device 171 which prevents energization of the alarm circuit including the buzzer 158 and the automatic dialing telephone 182 for a short period of time so that any movement made by the proprietor of a store, for example, to utilize the emergency switch would not cause immediate operation of the alarm and might thereby prevent the proprietor from being shot by a holdup man on suspicion of having sounded the alarm.

It will be understood that when any one of the switches 159-170 is closed that the conductor 172 is coupled to the conductor 194 thereby energizing the buzzer 158, the automatic dialing telephone 182 and the emergency light 174.

This emergency light 174 may be placed on the top of the enclosure or in an elevated position thereabove or therearound so that it will be apparent to the surrounding observers that there is an emergency at the location...
of this emergency light. This light may be arranged with a distinctive luminous sign or other indicator so that it will be recognized as an emergency light.

It will be obvious to those skilled in the art that the present circuit provides for comprehensive alarm protection of an enclosure which the invention is utilized to protect.

When the proprietor or owner of an enclosure or prop- erty returns thereto, he may insert the key 28 in the tumber of the lock 26 and turn the tumber and the rotat- ing member 30 substantially 180 degrees in order to re- tract the key 28 therefrom. This amount of rotation causes the shaft 32 to rotate the switch rotor 70 180 degrees, engaging the contacts 72 and 74 with the contacts 54 and the bridging contact 60, hereinbefore de- scribed, thereby completing a circuit from the conductor 145 through the conductor 143 to one end of the sole- noid coil 159 which closes the switch 152 and turns on a light 154 internally of an enclosure. Thus, the pro- prietor may enter the enclosure with the lights on. After he has entered the enclosure, he may reset the switch mechanism as follows: First of all, he must turn the control handle 54 to the "off" position as hereinbefore described, before resetting the tumber and rotating mechanism 38 in order to dispose the contacts 72 and 74 of the switch rotor 70 in engagement with the contacts 56 of the stator 58.

When the contacts 72 and 74 are again rotated into position in engagement with the contacts 86, the key 28 may again be removed whereupon the proprietor may close the entrance door which is protected with one of the switches 159-168. Thus, the respective switch is again open permitting the proprietor or operator to then return the dial handle 54 to the "on" position whereby the contacts 72 and 74 are abridged by the bridging con- tacts 58 to complete a circuit across the contacts 86 of the stator 88 and to thereby connect the conductors 94 and 96 so that closing of any one of the switches 159-170 will set off the alarm system.

Thus, the proprietor, when within the enclosure, may enjoy the protection of the alarm system by a very sim- ple operation of the switching mechanism shown in FIG. 1 of the drawings, which permits activation and de-activation of the alarm circuit both internally and externally of the enclosure. This is accomplished by the key 28 at the outer side of the enclosure and the control knob 54 at the inner side of the enclosure, all operating on a common switch mechanism.

It will be obvious to those skilled in the art that vari- ous modifications of the present invention may be re- sorted to in a manner limited only by a just interpreta- tion of the following claims.

I claim:

1. In an alarm system and switch means, the combina- tion of: a frame; an outer end of said frame disposed to communicate with the outside of an enclosure; an inner end of said frame disposed to communicate with the inner side of an enclosure; a lock means supported by said frame at said outer end thereof; a first movable means of said lock means; a key disposed to fit said lock means and to actuate said first movable means; an electro- nical switch means operably connected to and movable by said first movable means; and manually operable means supported by said frame at said inner end thereof; said manually operable means movably mounted in said frames and disposed to operate said means independently of said first movable means; a tumber of said lock means; said first movable means comprising a shaft coupled to said tumber; a first rotatable member of said switch means connected to said shaft and having contacts; a stator of said switch means fixed to said frame and having contacts cooperating with the contacts of said first rotatable member to make or break an electrical circuit; and a second rotatable member of said manually operable means having contact means cooperating with the contacts of said first rotatable member of said switch means disposed to make or break an electrical circuit, said tumber, said stator, and said first and second rotatable members all disposed on a common axis in said frame, said first and second rotatable members rotatable on said common axis.

2. In an alarm system and switch means, the combina- tion of: a frame; an outer end of said frame disposed to communicate with the outside of an enclosure; an inner end of said frame disposed to communicate with the inner side of an enclosure; a lock means supported by said frame at said outer end thereof; a first movable means of said lock means; a key disposed to fit said lock means and to actuate said first movable means; an electrical switch means operably connected to and movable by said first movable means; and manually operable means supported by said frame at said inner end thereof; said manually operable means movably mounted in said frames and disposed to operate said switch means independently of said first movable means; a tumber of said lock means; said first movable means comprising a shaft coupled to said tumber; a first rotatable member of said switch means disposed to said shaft and having contacts; a stator of said switch means fixed to said frame and having contacts cooperating with the contacts of said first rotatable member to make or break an electrical circuit; and a second rotatable member of said manually operable means having contact means cooperative with the contacts of said first rotatable member to make or break an electrical circuit; and a second rotatable member of said manually operable means having contact means cooperative with the contacts of said first rotatable member.

3. In an alarm system and switch means, the combina- tion of: a frame; an outer end of said frame disposed to communicate with the outside of an enclosure; an inner end of said frame disposed to communicate with the inner side of an enclosure; a lock means supported by said frame at said outer end thereof; a first movable means of said lock means; a key disposed to fit said lock means and to actuate said first movable means; an electrical switch means operably connected to and movable by said first movable means; and manually operable means supported by said frame at said inner end thereof; said manually operable means movably mounted in said frames and disposed to operate said switch means independently of said first movable means; said manually operable means having contact means cooperative with the contacts of said first rotatable member to make or break an electrical circuit; and a second rotatable member of said manually operable means having contact means cooperative with the contacts of said first rotatable member.

4. In an alarm system and switch means, the combina- tion of: a frame; an outer end of said frame disposed to communicate with the outside of an enclosure; an inner end of said frame disposed to communicate with the inner side of an enclosure; a lock means supported by said frame at said outer end thereof; a first movable means of said lock means; a key disposed to fit said lock means and to actuate said first movable means; an electrical switch means operably connected to and movable by said first movable means; and manually operable means supported by said frame at said inner end thereof; said manually operable means movably mounted in said frames and disposed to operate said switch means independently of said first movable means; said manually operable means having contact means cooperative with the contacts of said first rotatable member to make or break an electrical circuit; and a second rotatable member of said manually operable means having contact means cooperative with the contacts of said first rotatable member.
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said first movable means; a tumbler of said lock means; said first movable means comprising a shaft coupled to said tumbler; a first rotatable member of said switch means connected to said shaft and having contacts; a stator of said switch means fixed to said frame and having contacts cooperative with the contacts of said first rotatable member of said switch means disposed to make or break an electrical circuit; said first rotatable member of said switch means disposed between said stator and said second rotatable member of said manually operable means; said stator having a pair of said contacts; said first rotatable member of said switch means having a cooperative pair of said contacts extending therethrough and from its opposite ends and conforming with the contacts of said stator, said second rotatable member of said manually operable means having its said contact means in bridgable relation with said pair of contacts of said first rotatable member of said switch means, said tumbler, said stator, and said first and second rotatable members all disposed on a common axis in said frame, said first and second rotatable members rotatable on said common axis.

5. In an alarm system and switch means, the combination of: a frame; an outer end of said frame disposed to communicate with the outside of an enclosure; an inner end of said frame disposed to communicate with the inner side of an enclosure; a lock means supported by said frame at said outer end thereof; a first movable means of said lock means; a key disposed to fit said lock means and to actuate said first movable means; an electrical switch means operably connected to and movable by said first movable means; and manually operable means supported by said frame at said inner end thereof; said manually operable means movably mounted in said frames and disposed to operate said switch means independently of said first movable means; a tumbler of said lock means; said first movable means comprising a shaft coupled to said tumbler; a first rotatable member of said switch means connected to said shaft and having contacts; a stator of said switch means fixed to said frame and having contacts cooperative with the contacts of said first rotatable member to make or break an electrical circuit; and a second rotatable member of said manually operable means having contact means cooperative with the contacts of said first rotatable member of said switch means disposed to make or break an electrical circuit; said first rotatable member of said switch means disposed between said stator and said second rotatable member of said manually operable means; said stator having a pair of said contacts; said first rotatable member of said switch means having a cooperative pair of said contacts extending therethrough and from its opposite ends and conforming with the contacts of said stator, said second rotatable member of said manually operable means having its said contact means in bridgable relation with said pair of contacts of said first rotatable member of said switch means, whereby said second rotatable member of said manually operable means, when rotated into one position, disposes its contact means in bridgable relation with said contacts of said first rotatable member of said switch means and when said second rotatable member of said manually operable means is rotated to another position, said last mentioned contacts are not bridged by said contact means, said tumbler, said stator, and said first and second rotatable members all disposed on a common axis in said frame, said first and second rotatable members rotatable on said common axis.

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