

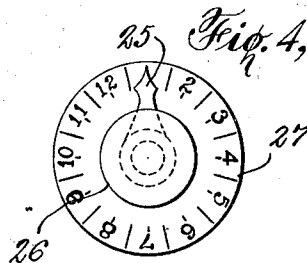
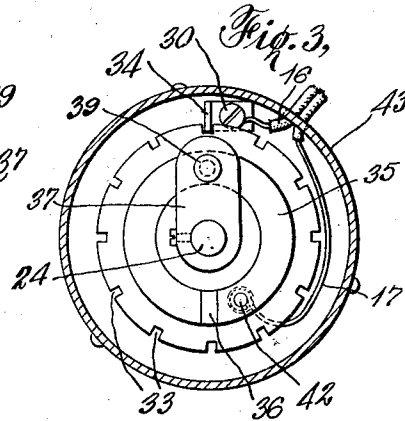
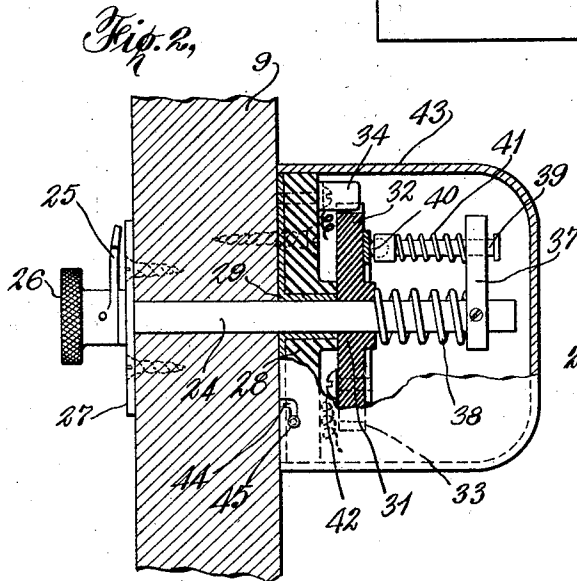
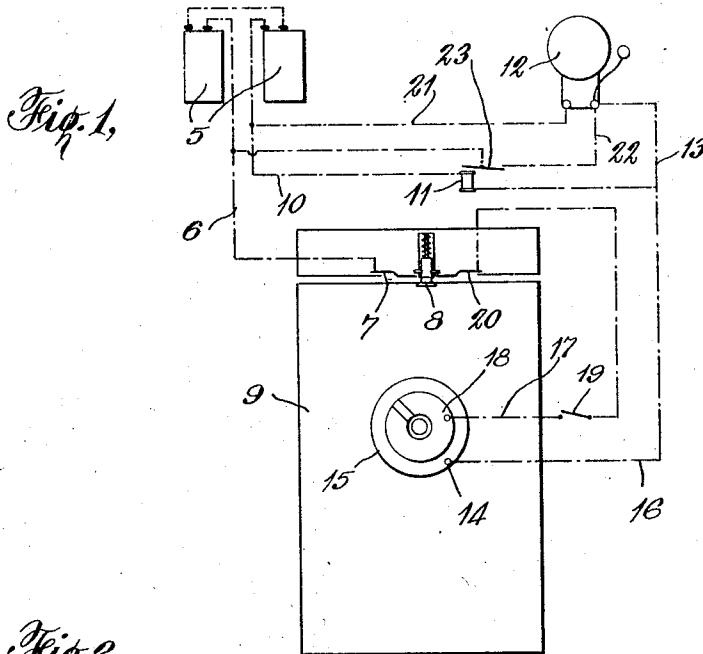
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SWITCH DEVICE FOR ALARM CIRCUITS

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SWITCH DEVICE FOR ALARM CIRCUITS.

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This invention relates to switch devices and particularly to devices of this class for use in connection with alarm circuits for protecting doors of residences, bank vaults as well as controlling any member governing the admission to a room or compartment of any kind or class; and the object of the invention is to provide a switch device which is adapted to be mounted in connection with the door or other member to be controlled, and provided externally of said door member with a dial by means of which the proper setting of the switch is facilitated; a further object being to provide a contact disk with means for retaining said disk and the non-conducting surface thereof in predetermined position with relation to said dial, and further with means for providing a quick adjustment of the disk at will to change the position of the non-conducting surface with relation to the several numerals of the dial; and with these and other objects in view, the invention consists in a device of the class and for the purpose specified, which is simple in construction, efficient in use and which is constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Fig. 1 is a diagrammatic view illustrating my improved switch device mounted in an alarm circuit.

Fig. 2 is a sectional, detail view of the switch device supported in connection with a door or other member.

Fig. 3 is a view of one end of the device, with part of the construction in section; and, Fig. 4 is a detail view of the dial employed.

In Fig. 1 of the drawing, I have shown for the purpose of illustrating one method of carrying my invention into effect, an alarm circuit wherein 5 represents batteries or other source of electric supply, one wire 6 from said source extending to one side of terminal 7 of a circuit connecting a breaking device 8 which is controlled by the opening and closing of the door 9, while the other wire 10 from said source extends to an electromagnet 11, and from said magnet to a bell or signal device 12, to the wire 13 and to one contact 14 of my improved switch de-

vice 15 to the wire 16. Another wire 17 from the contact 18 of the switch device 15 extends through a manually controlled switch 19 to the other contact 20 of the circuit making and breaking device 8. The wire 21 is coupled with the bell or signal device 12 and with the wire 10, and another wire 22 is coupled with said signal device and with the wire 6, the circuit through the last named wire being controlled by the armature 23 actuated by the electromagnet 11, the latter construction serving to maintain the circuit closed to the signal device 12 to constantly sound the alarm until such circuit is broken, when the circuit is once put in operation by the device 8 which is controlled through the switch device 15.

My improved switch device, in the construction shown, consists in a shaft 24 which is passed through the door 9 or other member to be controlled or may be mounted in connection with any suitable support. On the other end of said shaft is an indicator arm 25 rotated by means of a knob 26 over the surface of a dial plate 27 secured to the outer face of the door 9, the dial plate having graduations from 1 to 12 inclusive in the construction shown, and subdivisions intermediate the numerals for fine adjustment of the device.

Mounted upon the inner face of the door 9 is a disk 28 having a contact portion 29 engaging the shaft 24 and extending to the screw 30 which constitutes also a terminal or binding post for the wire 16, which is diagrammatically illustrated in Fig. 1. The disk 28 has a rearwardly extending hub portion 31 against which the face of an adjustable contact disk 32 operates, the contact disk 32 being free to rotate on the shaft 24 for purposes of adjustment, and is held in different positions of adjustment by providing a plurality of grooves 33 in the periphery thereof in connection with which a lock finger or bar 34 supported on the screw 30 operates.

The disk 32 is preferably composed of insulating material and carries on the inner face thereof, a circumferentially arranged contact ring 35 which is broken to form a non-conducting portion 36 at one point about the circumference thereof, the outer surface of the portion 36 being flush with the corresponding surface of the ring 35.

Adjustably supported on the inner end of

the shaft 24 is a block 37 which forms a seat for a coil spring 38 mounted on the shaft 24, and arranged between said block and the disk 32. This spring serves to hold the disk 32 in firm engagement with the hub portion 31 of the disk 28, and further to retain one of the coils 33 in engagement with the finger 34.

The block 37 carries a pin 39 which is movably supported therein and provided at one end with an anti-friction ball 40 which bears upon the face of the ring 35, and a spring 41 is mounted on the pin between the block 37 and the ball end thereof, providing a resilient and positive contact of the ball with the ring at all times. The wire 17 is coupled with the ring 35 through a terminal 42 arranged on the outer face of the disk 32, but extending to said ring.

I also preferably provide a closing 43 for enclosing the parts of the switch device on the inner face of the door 9, the casing being cup-shaped in form and provided at its forward end with bayonet apertures 44 engaging pins 45 on the periphery of the disk 28, thus providing for the quick attachment and detachment of the casing whenever desired, and it will be understood that the wires 16 and 17 extend through the casing and thereinto and are coupled with the terminals 30 and 42, respectively.

In the operation of my improved switch device, it will be understood that in order to open the door 9 or other member to be controlled to prevent the closing of the circuit to the signal device 12, the knob 26 must be rotated to correspondingly rotate the shaft 24, block 37 and pin 39 to bring the contact ball 41 upon the insulating portion or surface 36 in order to break the circuit through the wires 16 and 17, and when in this position which is indicated by a predetermined numeral on the dial plate 27, the door may be opened without sounding the alarm. Otherwise, and when the ball contact 40 is in engagement with the ring 35, the circuit will be closed through the wires 16 and 17 and the opening of the door will close the circuit through the circuit making and breaking device 8, and put the signal device 12 into operation through the electromagnet 11.

In devices of this class, it is found necessary at intervals to change the dial setting in order to insure against detection and to accomplish this result in a quick and efficient manner, the casing 43 is removed and the disk 32 is grasped by hand and pulled in the direction of the block 37 to disengage said disk from the finger 34, after which said disk is rotated to bring one of the other notches 33 into alinement with the finger 34, and then the disk is released and again retained against rotation in the shaft 24. It will be understood that the adjustment of the disk 32 in the resetting of the device, is

accomplished without the use of screws or implements of any kind or class, thus rendering the device, simple, practical and efficient in operation.

It will be understood that I am not necessarily limited to any specific location or mounting of my improved switch device, nor to the specific structural details of the device herein shown and described, and various changes therein and modifications thereof may be made within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A switch device of the class described comprising a manually actuated member, means for indicating the several positions of said member, an electric contact actuated by said member and movable over the contact surface supported in the path of movement of said contact, an insulating surface interposed in the path of said contact to break the circuit thereto, means involving a disk for adjustably supporting said contact surface with relation to said contact, said disk being provided with recesses in the periphery thereof, and a finger adapted to engage one of said recesses to retain said disk in predetermined position of adjustment.

2. A switch device of the class described comprising a manually actuated member, means for indicating the several positions of said member, an electric contact actuated by said member and movable over the contact surface supported in the path of movement of said contact, an insulating surface interposed in the path of said contact to break the circuit thereto, means involving a disk for adjustably supporting said contact surface with relation to said contact, said disk being provided with recesses in the periphery thereof, a finger adapted to engage one of said recesses to retain said disk in predetermined position of adjustment, and a spring for supporting said disk in engagement with said finger.

3. A switch device of the class described comprising an adjustable contact disk having a circumferentially arranged contact surface interrupted at an interval by a non-conducting surface, means for supporting said disk in predetermined positions of adjustment, a contact member movably disposed over the contact and insulating surfaces of said disk and tensionally supported in engagement therewith, a shaft extending axially through said disk and provided at one end with an operating knob, by means of which the shaft may be rotated, a block adjustably supported on the other end of said shaft, said contact member being mounted on said block whereby the rotation of said shaft will rotate said member over said surfaces, and means for in-

dicating a predetermined position of the shaft in the adjustable rotation thereof.

4. A switch device of the class described comprising an adjustable contact disk having
5 a circumferentially arranged contact surface interrupted at an interval by a non-conducting surface, means for supporting said disk in predetermined positions of adjustment, a contact member movably disposed over the
10 contact and insulating surfaces of said disk and tensionally supported in engagement therewith, a shaft extending axially through said disk and provided at one end with an operating knob by means of which the shaft
15 may be rotated, a block adjustably supported on the other end of said shaft, said contact member being mounted on said block whereby the rotation of said shaft will rotate said member over said surfaces, and means for indicating a predetermined position of the
20 shaft in the adjustable rotation thereof, said first named means involving a spring on said shaft and cooperating with said disk.

5. A switch device of the class described
25 comprising an adjustable contact disk having a circumferentially arranged contact surface interrupted at an interval by a non-conducting surface, means for supporting said disk in predetermined positions of adjustment, a contact member movably disposed over the contact and insulating surfaces of said disk and tensionally supported
30 in engagement therewith, a shaft extending axially through said disk and provided at one end with an operating knob by means of which the shaft may be rotated, a block adjustably supported on the other end of said shaft and in connection with which said
35 contact member is mounted whereby the rotation of said shaft will rotate said member over said surfaces, means for indicating a predetermined position of the shaft in the adjustable rotation thereof, said first named
40 means involving a spring on said shaft and cooperating with said disk, and a fixed finger adapted to engage one of a number of recesses in said disk.

6. A switch device of the class described
50 comprising a mounting disk, a shaft rotatably mounted therein and adapted to extend through the support in connection with which the mounting disk is supported, an operating knob on the outer end of said shaft,

a contact disk rotatably mounted on the inner end portion of said shaft adjacent said
55 mounting disk, a key finger supported on the mounting disk and engaging the contact disk to retain the same against rotation, a contact ring supported on said contact disk and insulated from said disk, a non-conducting
60 surface in the path of said ring, an electric contact supported on the inner end of the shaft and tensionally engaging said contact ring and movable thereover in the rotation of said shaft and adapted to be brought into engagement with said non-conducting surface,
65 and a spring mounted on said shaft and cooperating with the contact disk for retaining the same in adjusted position and permitting of the adjustment of said disk on the compression of said spring and movement of the disk out of engagement with the key finger.

7. A switch device of the class described comprising a mounting disk, a shaft rotatably mounted therein and adapted to extend
75 through the support in connection with which the mounting disk is supported, an operating knob on the outer end of said shaft, a contact disk rotatably mounted on the inner end portion of said shaft adjacent said
80 mounting disk, a key finger supported on the mounting disk and engaging the contact disk to retain the same against rotation, a contact ring supported on said contact disk and insulated from said disk, a non-conducting
85 surface in the path of said ring, an electric contact supported on the inner end of the shaft and tensionally engaging said contact ring and movable thereover in the rotation of said shaft and adapted to be brought into
90 engagement with said non-conducting surface, a spring mounted on said shaft and cooperating with the contact disk for retaining the same in adjusted position and permitting of the adjustment of said disk on the compression of said spring and movement of the
95 disk out of engagement with the key finger, and a cup-shaped casing detachably supported in connection with said mounting disk and enclosing the inner end portion of the
100 switch device.

In testimony that I claim the foregoing as my invention I have signed my name this 11th day of June, 1927.

MICHAEL J. CAWLEY.