F. BARR.

ELECTRIC SWITCH.

APPLICATION FILED OCT. 5, 1911.

1,085,398.

Patented Jan. 27, 1914.

2 SHEETS—SHEET 1.

Fig. 3.

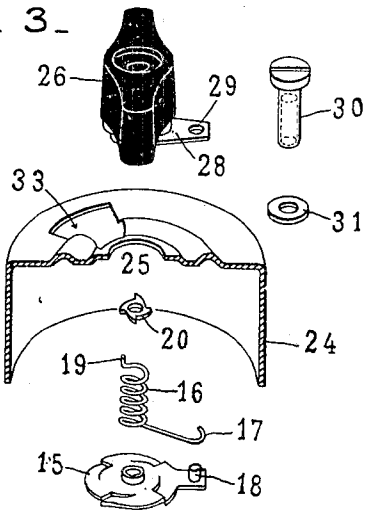


Fig. 4.

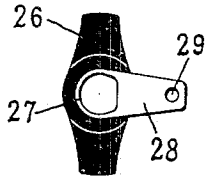
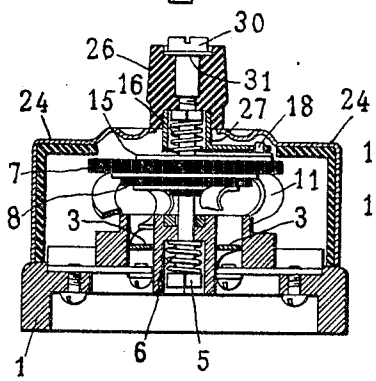


Fig. 1.



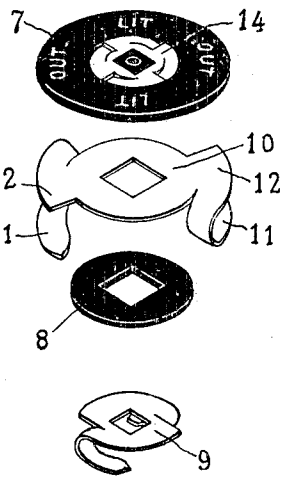


Fig. 2.

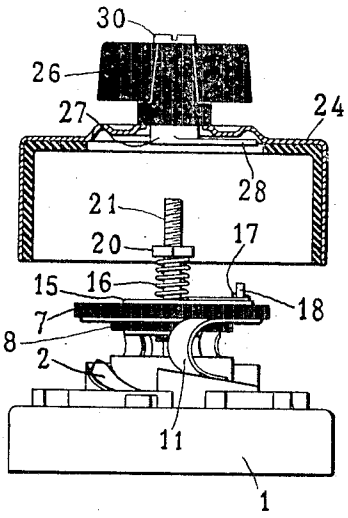
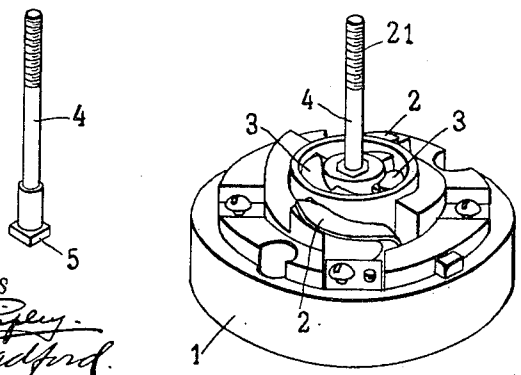


Fig. 5.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 7.

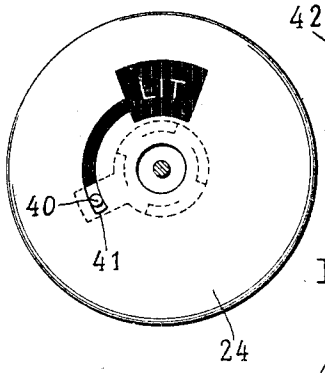


Fig. 8.

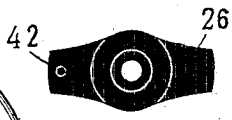


Fig. 6.

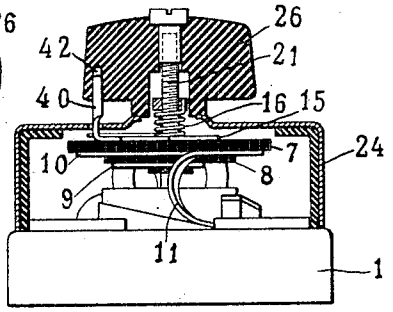


Fig. 13.

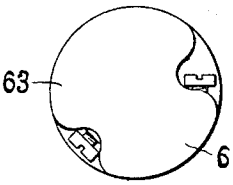


Fig. 11.

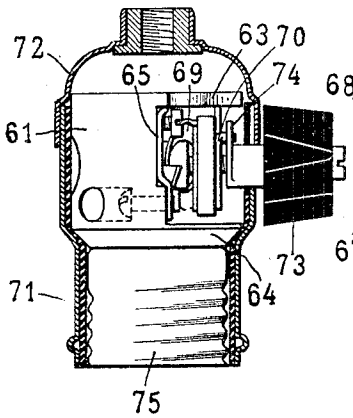


Fig. 12.

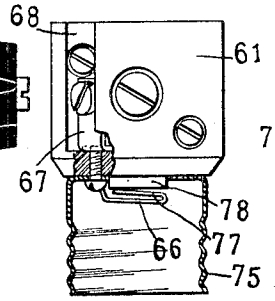


Fig. 10.

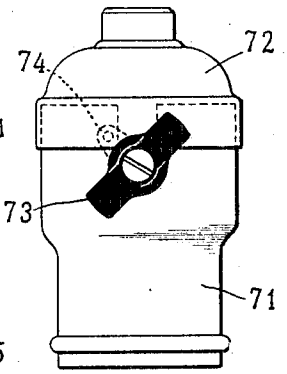


Fig. 14.

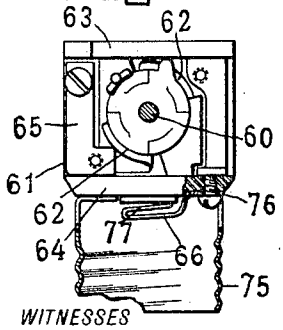


Fig. 9.

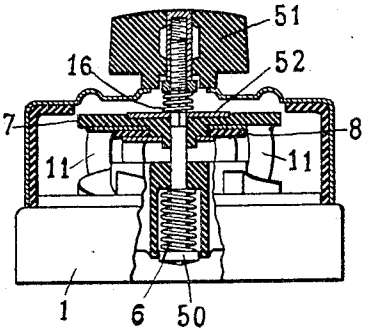
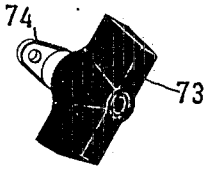


Fig. 15.



WITNESSES

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FREDERIC BARR, OF NEW YORK, N. Y.

ELECTRIC SWITCH.

1,085,398. Specification of Letters Patent. Patented Jan. 27, 1914.

Application filed October 5, 1911. Serial No. 652,925.

To all whom it may concern:

Be it known that I, FREDERIC BARR, a citizen of the United States, and a resident of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification.

My invention relates particularly to hand operated snap switches and lamp sockets.

The main objects are to provide a combination in which the operation will have a quick make and break without severe vibration; to provide a removable oscillable thumb turn or handle; to provide a durable rotatable switch member; to provide a convenient location of the contacts and terminals and yet avoid short circuiting; and to provide a durable and efficient center lamp contact.

Figure 1, is a sectional view of a ceiling or wall switch embodying certain features of my invention. Fig. 2, is a side elevation of the base and switch contacts with the shell or cover shown off and in section. Fig. 3, is a drop perspective of the entire switch of Figs. 1 and 2. Fig. 4, is a bottom view of the handle. Fig. 5, is a perspective view of the spindle. Fig. 6, is a section and elevation showing a modified form of connection between the handle and operating member. Fig. 7, is a face view of the switch of Fig. 6, the handle being omitted. Fig. 8, is a bottom view of the handle of Fig. 6. Fig. 9, is a sectional view of another modification. Fig. 10, is a front view of a lamp socket switch embodying certain features of my invention. Fig. 11, is a side view of the switch of Fig. 10, the shell or casing being shown in section. Fig. 12, is a rear view of the switch of Fig. 10 without the shell. Fig. 13, is a top plan view of the base of Fig. 12. Fig. 14, is a front view of the switch of Figs. 10, 11 and 12 without the handle. Fig. 15, is a perspective view of the handle of Fig. 10.

As is customary in constructions of this character the base or block is formed of porcelain of the shape and size to accommodate the desired number and arrangement of stationary contacts 2 and 3. The non-rotatable spindle 4 is carried by the base and arranged to carry a rotatable member for contact arms. In the form shown in Figs. 1 to 7 inclusive, the head 5 of the spindle is square and fits in the correspondingly shaped recess in the base so as to prevent rotation. A spring 6 engages the head 5 and presses the spindle downward. The rotatable member consists of insulating disks 7 and 8 and contact members 9 and 10 arranged to rotate together, the disk 8 being arranged between the contact members 9 and 10. Each contact member consists of a plate portion and spring arms 11, 11 which are reflexed beneath the plane of the plate portion, the tips being substantially beneath the points 12, 12 where the arms are connected to the plate portion. These spring arms are bowed away from the plane of the plate portion so as to be rather stiff but somewhat resilient. I have found this shape and arrangement to be more durable than a construction having the tips of the arms bent up close to the plane of the plate portion. In the upper face of the insulating disk 7 is a ratchet plate 14. An operating ratchet 15 is mounted on the spindle 4 above the ratchet plate 14. A helical spring 16 is also mounted on the spindle 4 above the operating member 15. The lower end 17 of the spring engages a lateral extension 18 on the operating member 15. The upper end 19 of the spring engages a notched nut 20 which is screwed on to the upper end 21 of the spindle 4 and serves as an abutment for the spring. The spring 16 presses the operating member 15 and the rotating member previously referred to toward the base and also impresses upon the oscillating operating member 15 a tendency to rotate in an anti-clock-wise direction, the rotating member being adapted to rotate only in a clock-wise direction by virtue of the shape and arrangement of the stationary switch contacts. The rotating member may thus be said to float between the springs 6 and 16.

A shell, cap, covering or casing 24 surrounds the parts of the switch mechanism and has a central opening 25 through which the upper end 21 of the spindle projects. The operating thumb-turn or handle 26 has a tubular member 27 embedded in its lower end which has a laterally projecting arm 28 which is adapted to be inserted through the opening in the shell 24 as shown in Fig. 2. This arm 28 has a recess or opening 29 adapted to receive the projecting stud 18 of the operating member 15 previously described. An interiorly threaded tubular

screw 30 passes loosely down through the handle 26 and is screwed fast on to the upper end 21 of the spindle so as to thereby loosely hold the handle on the upper end of the non-rotating spindle. A washer 31 may be interposed between the head of the screw and the handle. The handle is thus seen to be mounted upon the spindle in such a manner as to permit of its oscillation and the corresponding oscillation of the operating member 15 inside the shell 24. As the handle and operating member are oscillated by hand and returned by the spring 16, the rotatable switch members are rotated step by step so as to intermittently make and break the circuit through the switch contacts. When the screw 30 is withdrawn the handle 26 can be readily detached and shell 24 removed with it, if desired, as shown in Fig. 2.

In the form just described the disk 7 is provided with symbols or words such as "Lit" and "Out" which can be brought into view beneath the opening 33 to indicate the position of the switch contacts.

In the form shown in Figs. 6 and 7 the operating member 15 has a post 40 which extends through a slot 41 in the shell 24 and fits into a recess or hole 42 in the handle 26.

In the form shown in Fig. 9 the spindle 50 is rotatable with the handle 51 which is screwed onto the upper end. The disk 7 and contact members carried thereby rotate only right handed or clock-wise. A ratchet disk 52 rotates with the spindle and engages the disk 7 so as to rotate the disk when the ratchet rotates in one direction and so as to rotate freely in a backward direction.

In the form shown in Figs. 10 to 15 the spindle 60 passes laterally through the base or block 61. The stationary spring contact arms 62, 62 are secured to the base between the semi-circular flanges 63 and 64. A circuit terminal 65 is connected to one contact and the center lamp contact 66 is connected to the other. The other circuit terminal 67 is mounted in a groove 68 in the base or porcelain block 61. The rotatable switch member 69 and the oscillating operating member 70 are mounted on the spindle between the flanges 63 and 64 and the parts are inclosed in the shell which consists of the body 71 and cap 72. The handle 73 has an arm 74 inside the shell which engages the oscillating member 70 in the same manner as the first form described. The handle operates the switch when turned about a half turn right handed, or clock-wise and flies back when released. The screw socket 75 is connected to the terminal 67. The center lamp contact 66 has a foot portion 76 by which it is anchored and a tip portion 77 which is adapted to bear against the porcelain boss 78 when it is pressed upward by a lamp. This gives two yielding points of support for the contact portion 66.

What I claim is:—

1. In a switch, a base, a switch contact carried thereby, a spindle, a ratchet oscillable thereon and having a lateral arm and a handle oscillable on said spindle and having a lateral arm and detachable means of connection between said arms, and a switch member rotatably mounted on said spindle and adapted to be rotated by said ratchet.

2. In a switch, a base, a longitudinally movable spindle carried thereby, coöperating spring switch contacts carried by said base and by said spindle respectively, a spring on said spindle pressing said spring switch contacts together, an oscillable operating member on said spindle for moving one of said spring switch contacts, a handle therefor, and a second spring on said spindle pressing against said operating member.

3. In a switch, a base, a stationary switch contact on the base, a spindle carried by the base, a rotatable switch member and an oscillable operating member on said spindle a ratchet connection between said members, a handle having an arm, detachably connected with said operating member and a spring extending into said handle and pressing against said operating member.

4. In a switch, a base, a spindle carried thereby, a switch member rotatable thereon, a stationary contact carried by said base, a handle on said spindle, means for preventing said spindle from turning, operative means of connection between said handle and said rotatable switch member, a spring pressing said member away from said handle and a screw passing through said handle from the outside and engaging said spindle and detachably securing said handle to said spindle.

5. In a switch, a rotatable switch member consisting of a plate portion and curved arms integral therewith and having their free ends reflexed beneath the plate portion and each free end being substantially in axial alinement with the points of connection of said respective arms with said plate portion.

6. In a switch, a porcelain base, two switch contacts and a circuit terminal all mounted on one side thereof the said circuit terminal being connected with one of the switch contacts, a spindle passing through said base between said contacts, a rotatable switch member on said spindle arranged to engage the switch contacts, means for operating said switch member, a second circuit terminal on the opposite side of said base, and lamp terminals on one end of said base connected with the other switch contact and with the second circuit terminal respectively.

7. In a switch, a porcelain base, two switch contacts and a circuit terminal all mounted on one side thereof, the circuit terminal being connected with one of the said switch contacts, a spindle passing through said base between said contacts, semi-circular flanges projecting above and below said contacts, a rotatable switch member on said spindle between said flanges arranged to engage the switch contacts, means for operating said switch member, a second circuit terminal on the opposite side of said base, and lamp terminals on one end of said base connected with the other switch contact and with the second circuit terminal respectively.

8. In a lamp socket, an insulating base, a spindle projecting through said base, switch contacts mounted on one side of said base on opposite sides of said spindle, a circuit terminal on the base connected with one of the switch contacts, lamp contacts on one end of said base, one of said lamp contacts being connected with the other one of the switch contacts, a circuit terminal carried by said base and connected to the other one of said lamp contacts, a movable switch member on said spindle for connecting and disconnecting said switch contacts, a ratchet mounted on said spindle for moving said switch member, a shell inclosing said parts and a key external to said shell having a shank detachably connected to said ratchet inside said shell.

9. In a lamp socket, the combination with an insulating base having a central stationary support, of a thin center contact member adapted to be engaged and flexed by the center contact of a lamp or other device inserted in the socket, the said member having a foot portion secured to the base adjacent one edge thereof, an angularly outstanding resilient contact portion disposed out of contact with the base and extending inward over the central support, and a resilient tip portion reflexed under the contact portion and lying close to the back of the contact portion and bent back at an acute angle toward the support so as to engage with the support only at its extreme free end and at a point relatively close to the foot portion to thereby form a spring arm bearing with its free end upon the stationary support to normally yieldingly hold the contact portion away from the support with the return bend between the contact portion and tip portion supported out of engagement with the support, whereby the center contact is made resilient at a plurality of points and is adapted to have its contact and tip portions bent together when a lamp is screwed tightly into the socket.

FREDERIC BARR.

Witnesses:
ROBERT S. ALLYN,
ELISHA W. MCGUIRE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."