

Dec. 27, 1927.

1,654,373

F. A. HOLT

ELECTRICAL SWITCH MECHANISM

Filed June 2, 1923

Fig. 1.

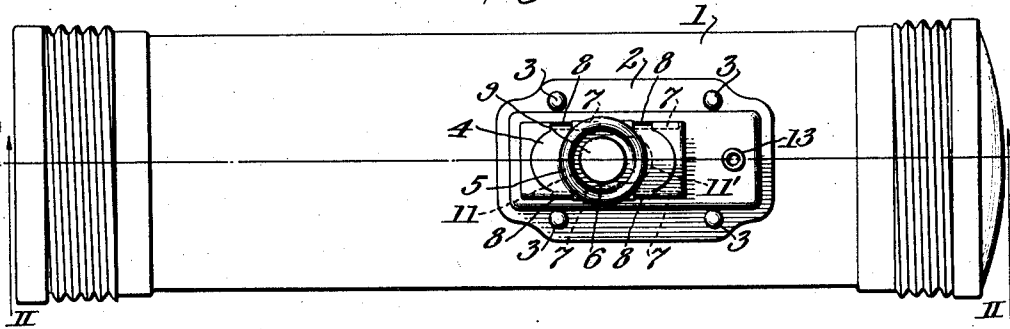


Fig. 2.

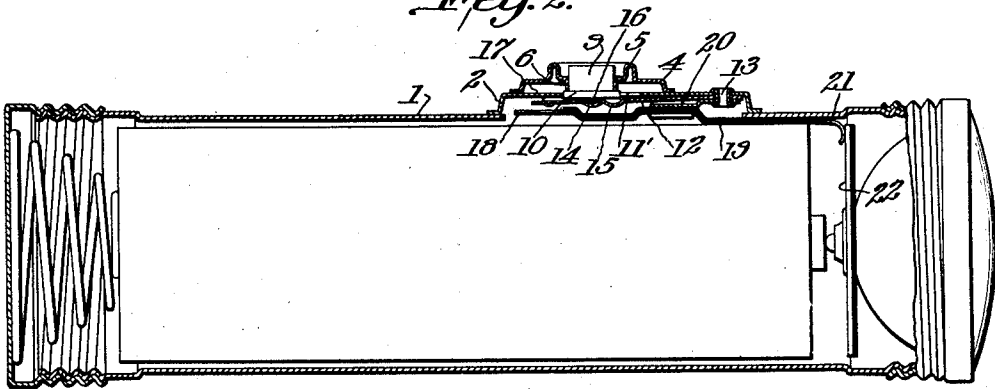


Fig. 3.

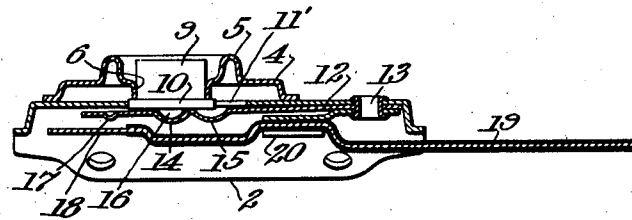
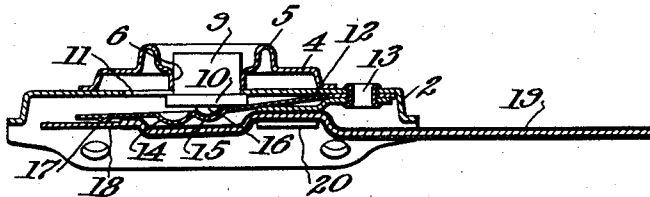


Fig. 4.



Inventor:

Francis A. Holt,

By *Byrne, Jones and Brinkman*
Attorneys

UNITED STATES PATENT OFFICE.

FRANCIS A. HOLT, OF ELMHURST, NEW YORK, ASSIGNOR TO NATIONAL CARBON COMPANY, INC., A CORPORATION OF NEW YORK.

ELECTRICAL SWITCH MECHANISM.

Application filed June 2, 1923. Serial No. 643,033.

This invention relates to improvements in electrical switch mechanism. The invention is particularly adapted for use as a circuit controller in flashlights or the like, and comprises means permitting continuous or intermittent closure of the circuit. A novel and advantageous arrangement of conductive members cooperating with the switch is also provided.

A preferred form of the improved construction is shown in the accompanying drawing, in which

Fig. 1 is an elevation of a flashlight provided with the novel switch;

Fig. 2 is a transverse section on line II—II, Fig. 1; and

Figs. 3 and 4 are enlarged vertical sections through the switch, showing it in intermittently operable and locked contact positions, respectively.

In the drawings, reference numeral 1 denotes a metallic flashlight casing having an escutcheon plate 2 secured over an opening therein, by rivets 3 or other suitable means. A slidable housing 4, having a central up-standing wall 5 defining a circular opening 6, is mounted for reciprocating movement in slots 7 in the escutcheon plate. The housing 4 may be secured against vertical displacement by means of integral tongues 8 which pass through slots 7 and are bent inwardly at right angles. A push button 9 is received in the circular opening 6 and has an annular flange 10 near its base. The escutcheon plate is provided with a key slot having a circular portion 11 adapted to receive the flange 10 snugly, and a narrowed portion 11' which will admit the body of the button 9, but not the flange. The diameter of opening 6 is somewhat less than that of the flanged base of button 9, so that upward movement of the latter is prevented.

A resilient contact arm 12 is pivotally held near one end of the escutcheon plate, as by a rivet 13. Arm 12 has depressions 14 and 15 into which a raised portion 16 at the bottom of push button 9 may be snapped. The engagement between these parts suffices to hold the slidable housing against accidental movement from either of its two adjusted positions.

Another depression 17 is formed near the free end of the arm 12 and is adapted to engage an exposed portion 18 on conductor strip 19. This strip is secured beneath the

escutcheon plate by a hanger 20, held in place by rivet 13. The remainder of the strip, except end 21, which engages reflector support 22, is insulated by a coating 23 of tough, flexible material, such as celluloid, a phenolic condensation product, rubber, or shellac. A valuable feature of the invention is the simplification resulting from the replacement of separate insulating means by a non-conductive coating on the conductor strip which provides a close-fitting jointless insulating coating conforming to and substantially as resilient as the conductor strip. Also, assembly is further materially facilitated by fastening the strip to the switch mechanism itself, making it unnecessary to attach the strip to the casing.

The operation of the switch is as follows: In the intermittently operable or "flash" position shown in Fig. 3, the push button 9 may be freely depressed to move the outer end of contact arm 12 into engagement with the exposed portion 18 at the free end of the flexible conductor strip 19. When the pressure upon the button is removed, it will be returned to its initial position by the resilience of the arm 12. So long as the button is in raised position, the housing 4 can not be moved, as flange 10 is too large to enter the slot 11'.

To lock the contact arm in circuit-closing position, the button is depressed and moved along slot 11' until the raised portion 16 snaps into depression 15. Flange 10 prevents the button from rising and the contact is therefore maintained until the housing is moved to its former position. The wall 5 rises above the push button 9 and shields it from accidental depression, so that means for locking out of circuit closing position is not necessary.

In the flashlight illustrated, the reflector is insulated from the casing, so as to prevent accidental short-circuiting by contact with conductive bodies. When the switch is closed, circuit is established through conductor strip 19 to reflector support 22, the outer lamp terminal, the lamp filament, the inner lamp terminal, the battery, the casing 1, and thence to the contact arm 12.

The switch may be applied to flashlight or other casings made of insulating material, if a conductor is arranged to connect the switch with the zinc pole of the battery.

I am aware that its is not broadly novel

to provide a two-position switch having a depressible and reciprocable member as its chief operative element. Particular advantages are secured, however, by the combination of such a member with the other features of construction described herein, and this combination is covered by the appended claims.

I claim:

10 1. Electrical switch mechanism comprising a base, a housing movable with respect thereto into adjusted positions, a depressible member in said housing, a conductor secured to said base and having a flexible contacting portion, and a resilient contact arm secured to the base and adapted to be depressed by said member to engage the conductor.

2. The invention according to claim 1, in which means are provided to retain the depressible member in an adjusted position.

3. The invention according to claim 1, in which means comprising cooperating parts on the depressible member and the contact arm are provided to retain said member in adjusted position.

4. Electrical switch mechanism comprising a reciprocable and depressible member, a resilient contact arm adapted to be actuated thereby and rigidly secured at one end, and cooperating means on the depressible member and the contact arm to retain said member in either of two adjusted positions.

5. Electrical switch mechanism comprising a base having communicating openings of different dimensions therein, a reciprocable and depressible member having a flange adapted to pass through the larger of said openings only, a resilient contact arm having means for retaining said depressible member at each of said openings and adapted to be brought into engagement with a conductor by movement of the depressible member, said flange when positioned beneath the smaller of said openings serving to maintain such engagement.

6. Electrical switch mechanism comprising a base having therein communicating openings of different dimensions, a reciprocable and depressible member having a flange adapted to pass through the larger of said openings only, a resilient contact arm at all times positioned below said openings and adapted to be brought into engagement with a conductor by movement of the depressible member, said flange when positioned beneath the smaller of said openings serving to maintain such engagement, said contact arm being rigidly secured at one end and having depressions into which a boss on the reciprocable member snaps when that member is in either of its adjusted positions.

7. Electrical switch mechanism comprising an escutcheon plate adapted to be secured

over an opening in a flashlight casing, a housing slidable thereon into adjusted positions, a depressible member in said housing, a wall on said housing at all times extending above the depressible member to prevent accidental actuation thereof, a conductor, and a resilient contact arm adapted to be depressed by said member to engage the conductor.

8. Electrical switch mechanism according to claim 7, in which said conductor and said contact arm are secured to said escutcheon plate.

9. In an electric switch for flashlights, the combination of an escutcheon plate adapted to be secured over an opening in a flashlight casing; a spring contact inside said plate; a conductor engageable by said contact; a housing movably mounted on said plate; and a push button movable by said housing and depressible to cause said contact member to engage said conductor.

10. In an electric switch for flashlights, the combination of an escutcheon plate adapted to be secured over an opening in a flashlight casing; a spring contact member secured to the interior of said plate; a conductor engageable by said contact member; a housing slidable along said plate; and a push button movable along said plate by said housing and also depressible to cause said contact member to engage said conductor.

11. The invention set forth in claim 10, in which said housing is reciprocable and has a wall defining an opening in which said push button is guided substantially perpendicular to said plate and said contact member.

12. The invention set forth in claim 10, in which said escutcheon plate has a slot through which said push button projects into engagement with said contact member.

13. The invention set forth in claim 10 in which said conductor is secured to the inside of said escutcheon plate.

14. The invention set forth in claim 10 in which a single rivet secures said contact member and said conductor to said escutcheon plate.

15. The invention set forth in claim 10 in which said conductor projects through said opening in the flashlight casing into the chamber formed by said plate and is engageable adjacent one end by said contact member, with means whereby said contact member and conductor may be temporarily locked in engagement.

16. The combination with a flashlight casing having an opening in a wall thereof; of an apertured escutcheon plate secured to said casing over said opening; a conductor and a switch secured to the inner side of said plate; a slide reciprocable along the out-

side of said plate opposite the aperture in the latter; and a push button movable by said slide and depressible through said aperture to cause said switch to engage said conductor.
5

escutcheon plate is so shaped that it will cooperate with said push button to retain the latter in depressed position.
10

In testimony whereof, I affix my signature.

17. The invention set forth in claim 16 in which a portion of the aperture in the

FRANCIS A. HOLT.