June 12, 1923.

1,458,460

A. G. ARNOLL

SWITCH FOR PORTABLE LAMPS

Filed Sept. 18, 1919

Fig. 1.

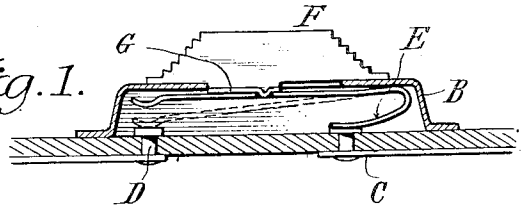


Fig. 2.

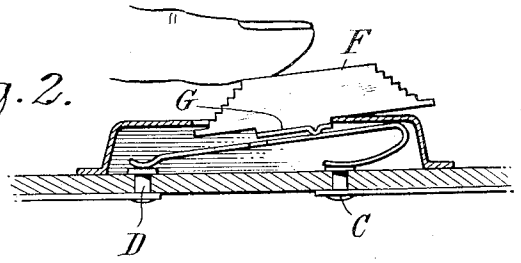


Fig. 3.

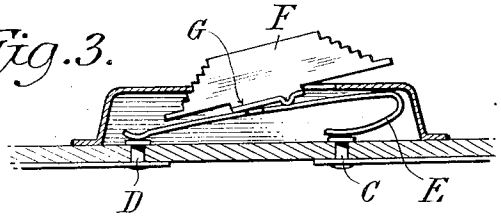
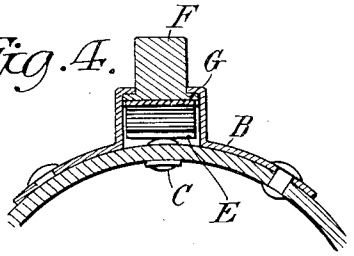


Fig. 4.



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UNITED STATES PATENT OFFICE.

ARTHUR G. ARNOLL, OF GLENDALE, CALIFORNIA, ASSIGNOR TO NATIONAL CARBON COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

SWITCH FOR PORTABLE LAMPS.

Application filed September 18, 1919. Serial No. 324,487.

To all whom it may concern:

Be it known that I, ARTHUR G. ARNOLL, being a citizen of the United States, residing at Glendale, county of Los Angeles and State of California, have invented certain new and useful Improvements in Switches for Portable Lamps, of which the following is a full, clear, and exact description.

The invention which is the subject of this application for Letters Patent is an improvement in the controlling switches for flash lights, portable electric lamps and the like, and is distinguished not only by its cheapness and practicability, but by the fact that it is capable of more varied uses or operations than may ordinarily be performed by devices of this character. This switch, in other words, is so designed and constructed that in normal position it cannot be depressed to make contact but that by a simple sliding movement to one side it may be used to flash the lamps, by another sliding and tilting movement it may be held by the finger to continuously close the circuit through the lamp, or by a still further tilting and sliding movement it may be locked in operative position to permanently close the circuit. All of these movements are under the direct control of the finger of the user and are effected thereby.

The improved switch is illustrated in the accompanying drawing in which:

Fig. 1 is a longitudinal sectional view of the device in normal condition.

Fig. 2 is a similar view showing the movable element shifted, tilted and retained by the finger for continuously lighting a lamp.

Fig. 3 is a similar view showing the switch locked in operative condition, and

Fig. 4 is a cross-sectional view of the switch.

The general nature and manner of use of devices of this nature are well understood and its mode of application to a lamp to be controlled is not therefore illustrated in detail. It is designed to be attached to any form of casing or holder containing a lamp and battery, of which only a portion of the wall A is shown.

The switch proper consists of a metal casing B secured to the lamp holder, over two terminals C, D to one C, of which a bent spring contact E is secured or maintained in contact the other or free end being suitably bent to constitute a contact which lies over the other lamp terminal D.

The movable element or finger piece of the switch is either a solid or hollow sheet metal member F having a somewhat prolonged base and stepped ends. It is held to and in its proper position on the casing B by means of a metal plate G secured to or integral with the base, with edges lying under those of an elongated slot in the top of the casing B.

From this construction it follows that the movable member or finger piece F may be pushed longitudinally over the top of casing B, by the finger, and when thus pushed approximately to its limit of movement in one direction, a projection on the underside of the plate G will depress the spring E into contact with terminal D and so close the circuit through the lamp. This use of the device is shown by the dotted line in Fig. 1 and is employed for flashing. With the parts in the full line position shown in Fig. 1 it is impossible to depress and tilt the member F as the prolonged ends overlie the casing at the ends of the slot therein.

In Fig. 2 the movable member is shown as pushed to approximately the same position and then tilted so that its rear end is depressed through the slot, in which position it may be retained by the finger to send a current continuously through the lamp or if the finger is released the movable member will return and break the circuit.

In Fig. 3 the rear end of the movable member is shown as still further depressed and the member then drawn back so that its stepped end comes under the end edge of the slot and being engaged thereby is held in this position, to permanently close the lamp circuit until the said member is pushed back.

The projection upon the underside of plate G has an additional function in that it serves to retain the finger piece F in central position thereby preventing accidental closing of the circuit. This is accomplished by the projection engaging in notches in the spring E as shown in Fig. 2, and thereby preventing accidental movement of the slide.

If desired the contact C can be omitted

and the lead to the battery lead to a rivet holding the case B to the fibre tube. This is the customary practise with flashlights. In this instance the casing itself forms one terminal and contact D the other.

It will be understood that the casing is a unitary structure and if energized at all, as is the case at all times in the construction described in the preceding paragraph and usually in the two terminal constructions, the entire casing will be in circuit with one terminal of the battery preventing any accidental short circuits. These accidental short circuits have been known to occur with two or more part casings where one part carries current of one polarity and the other part current of opposite polarity and where tools or other metallic articles come into contact with the separate casing parts.

This device is most convenient and useful for all forms of portable lamp. The special form, composition and construction of its parts are not of the essence of the invention and may be very greatly varied without departing from the spirit of the invention.

What I claim is:

1. A switch for portable electric lamps and like devices comprising a casing, a pair of terminals therein, a bent spring secured to one terminal and having its free end over the other, a movable member or finger piece slidable over a slot in the top of the casing and depressible downwardly relative to the top of the casing and through the slot, said member having a projection which encounters the spring when the said movable member is forced to one side and depresses its free end into contact with the underlying terminal.

2. A switch for portable electric lamps and like devices comprising a casing, a pair of terminals therein, a spring in contact with one terminal and having its free end lying over the other, a movable member or finger piece slidable over the top of the casing and secured over a slot therein by an integral part engaging with the under edges of the slot and adapted to be tilted through the slot to force the spring into contact with the underlying terminal.

3. A switch for portable electric lamps and the like comprising a unitary casing, a pair of terminals therein and a spring adapted to bridge said terminals, a slidable member secured to the casing over a longitudinal slot therein and adapted to be tilted through the slot to bring its end under the end edge of said slot whereby it is locked in position to cause the spring to bridge the two terminals.

4. In a switch of the kind described, the combination with a slotted casing, terminals therein and a contact for bridging said terminals, of a movable member having an elongated base and stepped ends secured to and adapted to slide over the top of the casing and capable of being tilted through the slot so that its stepped end is brought under and into locking engagement with the end edge of the slot and thereby permanently connect the terminals.

5. A switch for portable lamps comprising a slotted unitary casing adapted to be mounted upon the wall of the holder body; a contact member completely housed therein, a movable member mounted upon said unitary casing for both sliding and tilted movement, the said member when in tilted position having means for engaging under the edge of the slot in the unitary casing and for shifting the contact to circuit closing position.

6. A switch for portable lamps, comprising a slotted casing, a contact member therein, a movable member mounted upon said casing for both sliding and tilting movement, means associated with said movable member for shifting the contact member to circuit closing position when the movable member is tilted, and means associated with said movable member for preventing the tilting or depressing of the movable member when the same is in certain other positions.

7. A switch for portable lamps comprising, a slotted casing, a contact member therein, a movable member mounted upon said casing for both sliding and tilting movement, means associated with the movable member and operable when the latter is in tilted position for shifting the contact member to circuit closing position, and means associated with the movable member and operable when said member is in certain position of sliding upon the casing for retaining the movable member against free sliding movement and for preventing the tilting or depressing of the said member.

8. A switch for portable lamps comprising a slotted unitary conducting casing, a contact member therein, a movable member mounted to slide along the top of said casing and to be tilted through the slot therein, means operable when said member is in tilted position for shifting the contact to circuit closing position, and means forming an integral part of the unitary casing upon which the movable member slides, for locking the movable member in tilted position to maintain the contact in circuit closing position.

9. A switch for portable electric lamps, comprising a slotted casing, a contact member therein, a movable member mounted upon the casing for both sliding and tilting movement, means associated with said movable member and operable when the latter is in tilted position for shifting the contact member to circuit closing position, means for locking the movable member in tilted

position and operable at the option of the operator to allow the movable member to be moved and tilted and maintained unlocked, whereby the contact may be maintained continuously or temporarily in circuit closing position.

10. A switch for a portable electric lamp comprising; an apertured casing; a contact member therein; means comprising a movable member guided by said casing and depressible through the aperture, to actuate the contact member and close a circuit therethrough; and means associated with said movable member and operable when the latter is in certain relative positions to prevent the depression of said member, and operable when the movable member is in other relative positions to retain the said member in depressed position, and operable when the movable member is in still other positions to release the movable member and to permit the free depression and return of the same.

In testimony whereof I hereunto affix my signature.

ARTHUR G. ARNOLL.