C. HUBERT.

PORTABLE ELECTRIC LIGHT.

APPLICATION FILED JUNE 27, 1913.

1,075,827.

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Fig. 1.

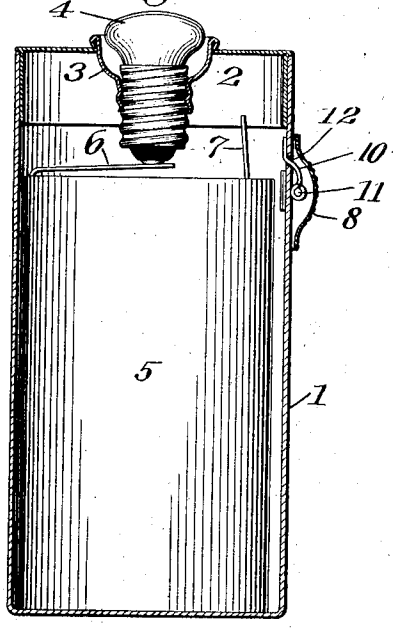


Fig. 2.

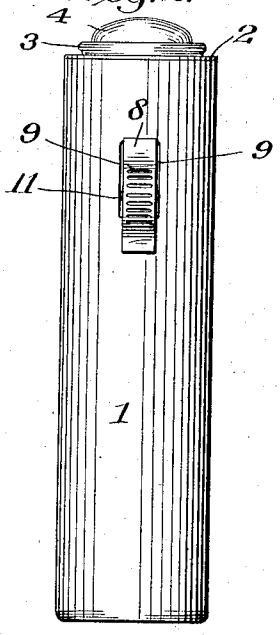


Fig. 3.

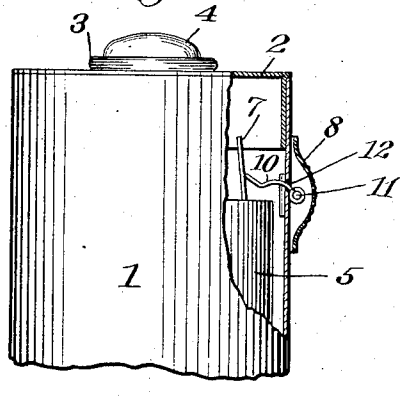


Fig. 4.

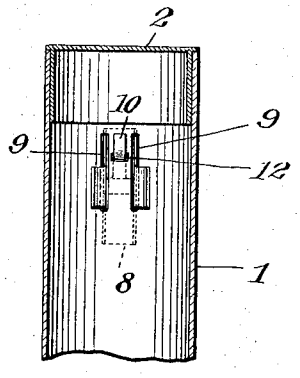
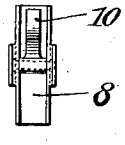


Fig. 5.



WITNESSES.

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PORTABLE ELECTRIC LIGHT.

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To all whom it may concern:

Be it known that I, CONRAD HUBERT, a citizen of the United States, residing in the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Portable Electric Lights, of which the following is a specification, reference being had therein to the accompanying drawings, forming part thereof.

My invention relates to portable electric lights of such size and shape as to be adapted to be carried in the pocket or held in the hand for use, commonly called flash lights.

A broad object of my invention is to give easy access to the miniature electric lamp for effecting renewals, and a more particular object is to so economize the space occupied by the circuit-closer within the casing that the battery may be inserted or removed at the top of the casing after the removal of a cover which carries the lamp.

Other objects of my invention are nonliability of accidental closure of the circuit and certainty of retention of closed circuit condition without effort of the operator, simplicity of construction, neatness of appearance, inexpensiveness of manufacture, durability, certainty of operation and of operable condition, and convenience of operation.

Other objects and advantages of my invention will hereinafter appear.

My invention includes a bodily slidable circuit-closing member to which is pivoted a circuit-completing contact finger, the casing of the light being provided with guides for the circuit-closing member and for the contact finger. More particularly, the circuit-closing member forms a housing at the outside of the casing and the pivoted contact finger projects from within the housing to the inside of the casing and is adapted to fold flat against the inner surface of the wall of the casing to permit the battery to be inserted or removed at the top of the casing.

My invention also further includes novel features of construction and combinations of parts, as will appear from the following description.

I shall now describe the portable electric light illustrated in the accompanying drawings embodying my invention and shall thereafter point out my invention in claims.

Figure 1 is a longitudinal section of the casing and movable circuit-closing member, with the circuit in the open condition. Fig. 2 is an elevation as viewed from the right in Fig. 1. Fig. 3 is a front elevation, partly in section and with parts omitted, with the circuit maintained in closed condition. Fig. 4 is a longitudinal section of the casing as viewed from the left in Fig. 1. Fig. 5 is an elevation of the circuit-completing means, without the casing, as seen in Fig. 4, but before the side lugs have been turned over to effect attachment to the casing.

In the portable electric light illustrated in the drawings and to which my invention is particularly applicable, a flattened and rounded sheet metal casing 1, permanently closed at one end, is closed at the other end by a lamp-carrying and battery-retaining removable cover 2 telescoping into the casing and having a lamp-receiving socket 3 into which is screwed a miniature incandescent lamp 4. The casing removably contains a battery 5 having projecting resilient contact strips or contact springs 6 and 7, forming battery terminals, of which the strip 6 extends partly across the end of the battery in position to be directly engaged by the center terminal of the lamp (Fig. 1) and the other contact strip 7 is exposed within the casing and projects from the end of the battery in position to be engaged by the movable contact finger of the circuit-closer forming the subject of the present invention, such contact finger being mounted on the casing in electrical connection therewith and the other lamp terminal being in electrical connection with the casing at the lamp socket.

In the circuit-closer embodying my invention illustrated in the drawings, a bodily slidable sheet metal circuit-closing member 8 is mounted on the casing by means of lateral combined guide lugs and attaching lugs which extend to the inside of the casing through parallel guide slots 9 (Figs. 2 and 4), these lugs being turned over at the inside of the casing and being slidable in the parallel guide slots or guideways 9. The circuit-closing member 8 is outwardly rounded or bulged at its middle to form a housing at the outside of the casing, and the longitudinally rounded projection of the housing is readily engageable by the thumb or finger for manual actuation, being shown as exteriorly roughened for this purpose.

A sheet metal contact finger 10 has a sleeve pivoted on a pivot pin 11 which is fixed at its ends in the side walls of the circuit-closing member 8 and extends transversely of the circuit-closing member midway of its length within the housing formed thereby. The contact finger 10 projects to the inside of the casing through a finger-guiding slot 12 in the casing transversely to and between the outer portions of the parallel guide slots 9. The portion of the contact finger adjacent to the pivot sleeve is curved inwardly so as to pass through the finger-guiding slot 12 and be properly guided thereby. The terminal portion of the contact finger 10 beyond the inwardly curved guide portion is straight and is joined to the curved portion by a rather short reverse bend so that the straight terminal portion of the contact finger is disposed substantially parallel to the curved portion at the point where it joins the pivot sleeve. This shape of the pivoted contact finger 10 enables it to coöperate with the other parts of the device to produce the desired results. When the circuit is open, the curved guide portion of the contact finger 11 is contained almost entirely within the housing formed by the circuit-closing member 8 at the outside of the casing and the straight terminal portion of the contact finger 11 lies flat against the inner surface of the casing 1, out of the path of the battery 5 as it is inserted into or removed from the casing, as clearly appears in Fig. 1. However, although it can be so completely retracted, the contact finger 10 is of sufficient length and has sufficient shifting movement at its free contact-making end to readily firmly close the circuit without the necessity of any exact positioning of the exposed projecting contact strip 7 of the battery 5, as clearly appears from Fig. 3.

Movement of the manually actuatable circuit-closing member 8 a comparatively short distance will result in the complete shifting of the contact finger 10 from the open circuit to the closed circuit position or vice versa, as will be clearly apparent by a comparison of Figs. 1 and 3. The circuit will be securely maintained in either the open or closed condition by reason of the friction of the circuit-closing member 8 and the contact finger 10 with the guiding surfaces of the casing. In this connection it should be noted, as appears in Fig. 3, that the circuit-closing thrust or pressure of the contact finger 10 against the battery contact strip 7 is nearly perpendicular to the direction of bodily sliding movement of the circuit-closing member 8, so that such pressure will not only have no tendency to move the circuit-closing member 8 away from the closed circuit position, but will develop additional locking friction. Also the contact finger 10 in the closed circuit condition occupies an oblique or angular position in the finger-guiding slot 12, the contact finger being gripped by the walls of the slot to hold the contact finger at contact-making position.

Among the several advantages of my invention, an important one hereinbefore referred to is that the lamp 4 is rendered readily accessible from the inside, so that it can very conveniently be placed in position or removed. It will be understood that my invention makes it possible to employ the same casing cover 2 for gaining access both to the lamp 4 and the battery 5.

It is obvious that various modifications may be made in the construction shown in the drawings and above particularly described within the principle and scope of my invention.

I claim:—

1. A circuit-closer for a portable electric light comprising, in combination, a casing having guideways for a circuit-closing member and also having a guide for a contact finger, a bodily slidable circuit-closing member mounted to slide along the guideways of the casing, and a contact finger pivoted to the circuit-closing member and projecting therefrom past the finger guide and terminating in a free contact-making end portion adapted to be shifted by the finger guide to or from contact-making position upon movement of the circuit-closing member.

2. A circuit-closer for a portable electric light comprising, in combination, a casing having guideways and having therein a guide aperture for a contact finger, a bodily slidable circuit-closing member mounted to slide along the guideways of the casing and having a manually actuatable portion at the outside of the casing, and a contact finger pivoted to the circuit-closing member at the outside of the casing and projecting through the guide aperture to the inside of the casing and terminating within the casing in a free contact-making end portion so that movement of the circuit-closing member will shift the contact-making portion of the contact finger to or from contact-making position.

3. A circuit-closer for a portable electric light comprising, in combination, a casing having guideways and having therein a guide aperture for a contact finger, a bodily slidable circuit-closing member mounted to slide along the guideways of the casing and having a manually actuatable portion at the outside of the casing, and a contact finger pivoted to the circuit-closing member at the outside of the casing and projecting through the guide aperture to the inside of the casing, the contact finger having a curved portion coöperative with the guide aperture and having a straight terminal portion

adapted to lie flat against the inner surface of the casing in the retracted position of the contact finger.

4. A circuit-closer for a portable electric light comprising, in combination, a casing having guideways and having therein a guide aperture for a contact finger, a bodily slidable circuit-closing member mounted to slide along the guideways of the casing and having a manually actuatable portion forming a housing at the outside of the casing, such housing covering the guide aperture in the casing, and a contact finger pivoted to the circuit-closing member within the housing thereof and projecting through the guide aperture to the inside of the casing and adapted to be moved to or from contact-making position by movement of the circuit-closing member to bring about coöperation of the contact finger with the walls of the guide aperture.

5. A circuit-closer for a portable electric light comprising, in combination, a casing having guideways and having therein a guide aperture for a contact finger, a bodily slidable circuit-closing member mounted to slide along the guideways of the casing and having a manually actuatable portion forming a housing at the outside of the casing, such housing covering the guide aperture in the casing, and a contact finger having a curved guiding portion pivoted to the circuit-closing member within the housing and projecting to the inside of the casing through the guide aperture and guided thereby and the contact finger also having a straight terminal portion within the casing and adapted to lie flat against the inner surface of the casing when the contact finger is out of contact-making position, the contact finger being moved to or from contact-making position by reason of coöperation of the curved guiding portion of the contact finger with the walls of the guide aperture upon movement of the circuit-closing member.

6. A circuit-closer for a portable electric light comprising, in combination, a casing having therein parallel guide slots and also having transversely to and between the parallel guide slots a guide slot for a contact finger, a bodily slidable sheet metal circuit-closing member having a manually actuatable portion forming a housing covering the guide aperture at the outside of the casing provided with combined guide lugs and attaching lugs extending to the inside of the casing through the parallel guide slots and guided thereby, a pivot pin carried by and extending transversely across the housing of the circuit-closing member, and a sheet metal contact finger having a sleeve journaled on the pivot pin and having a curved guiding portion projecting from the sleeve to the inside of the casing through the finger guiding slot and guided thereby and the contact finger also having a straight terminal portion within the casing and adapted to lie flat against the inner surface of the casing when the contact finger is out of contact-making position.

7. In a circuit-closer for a portable electric light, the combination of a circuit-closing member shaped to form a housing, and a contact finger pivoted within the housing formed by the circuit-closing member and projectable from such housing.

8. In a circuit-closer for a portable electric light, the combination of a sheet metal circuit-closing member shaped to form a housing, a pivot pin mounted in the housing formed by such circuit-closing member, and a sheet metal contact finger pivoted on the pivot pin and projectable from such housing.

9. A circuit-closer for a portable electric light, comprising, in combination, circuit-completing means including a bodily slidable circuit-closing member, and a pivotally shiftable contact finger pivoted to such member and shiftable on its pivot to or from contact-making position.

10. A circuit closer for a portable electric light comprising, in combination, circuit-completing means including a pivoted contact finger, and a bodily slidable circuit-closing member coöperating with the contact finger to shift it on its pivot to or from contact-making position.

11. A circuit closer for a portable electric comprising, in combination, a casing having a guide for a contact finger, a pivoted contact finger projecting from its pivot past the finger guide and terminating in a free contact-making end portion adapted to be shifted by the finger guide to or from contact-making position upon movement of the contact finger at its pivot, and means for controlling and guiding the contact finger at its pivot so that movement of the contact finger at its pivot will shift the contact-making portion of the finger to or from contact-making position.

In testimony whereof I have affixed my signature in presence of two witnesses.

CONRAD HUBERT.

Witnesses:
HARRY C. LEWIS,
JOHN W. WALLER.

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