

June 25, 1935.

A. E. OSBORN

2,006,175

CIRCUIT CLOSER

Filed March 13, 1930

4 Sheets-Sheet 1

FIG. 1.

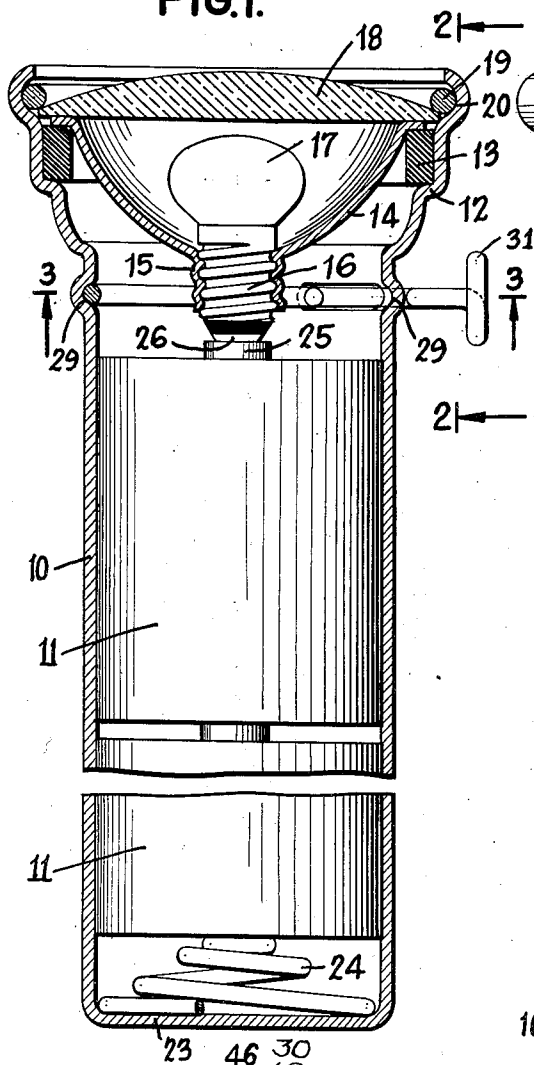


FIG. 2.

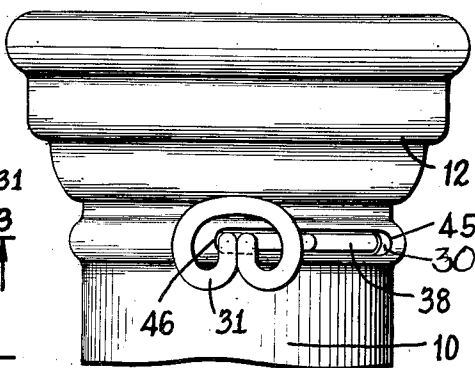


FIG. 3.

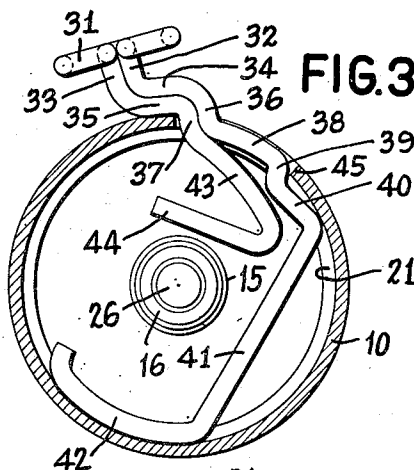


FIG. 4.

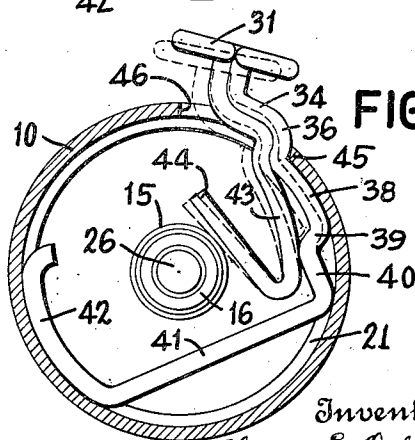
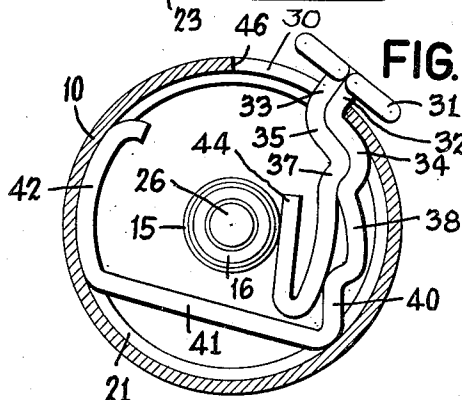


FIG. 5.



Inventor

Alden E Osborn

By his Attorneys

Bohleber & Lechetter

June 25, 1935.

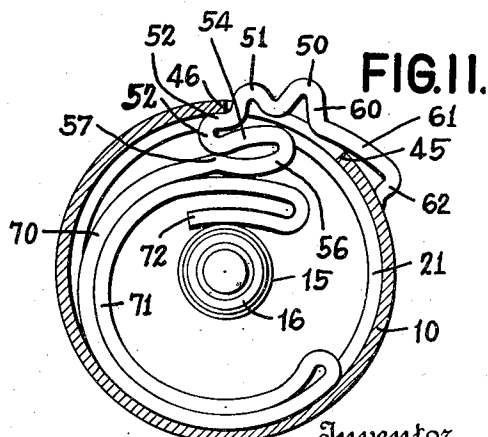
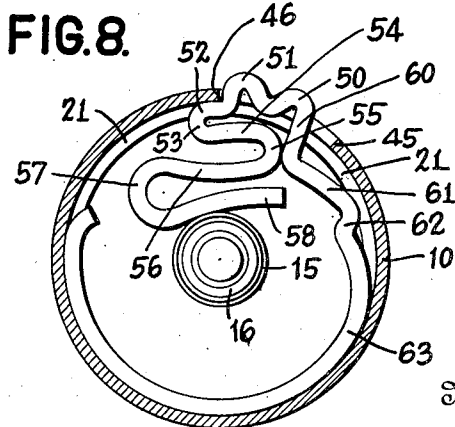
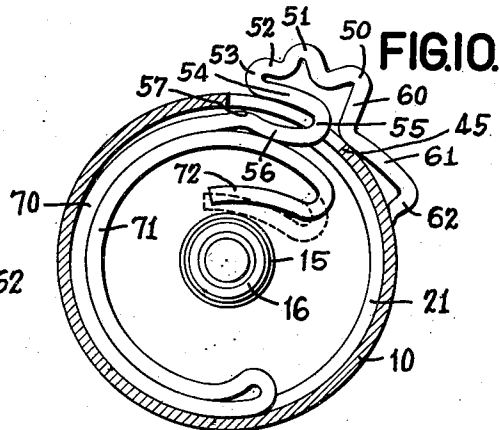
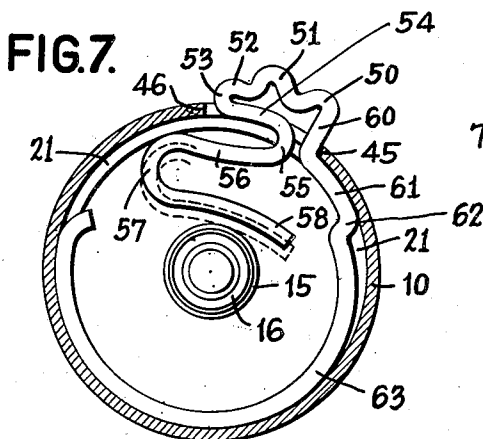
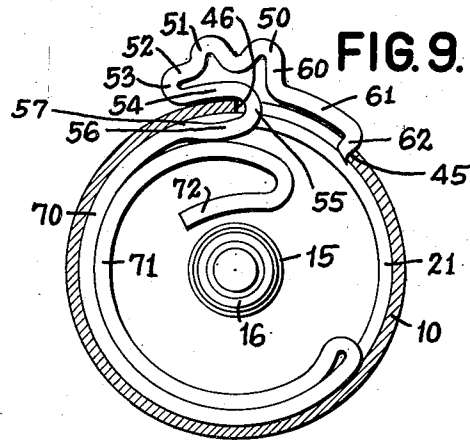
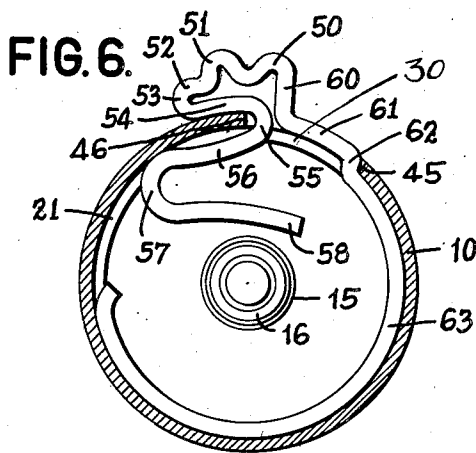
A. E. OSBORN

2,006,175

CIRCUIT CLOSER

Filed March 13, 1930

4 Sheets-Sheet 2



Inventor
Alden E. Osborn
By his Attorneys
Bohleber & Lecketter

2,006,175

4 Sheets-Sheet 3

FIG.13.

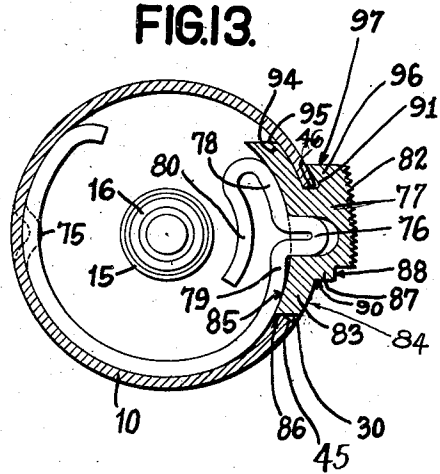
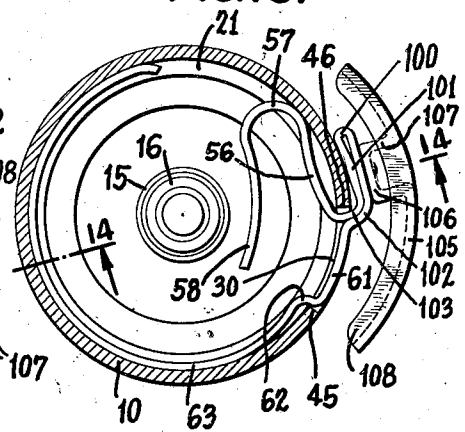


FIG. 15.



Inventor
Alden E. Osborn
By his Attorneys
Bobbler & Leebetter

June 25, 1935.

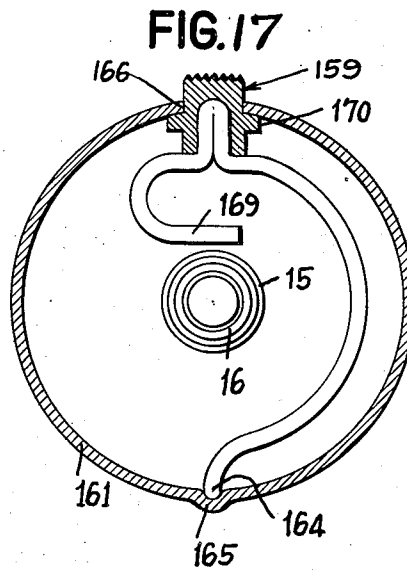
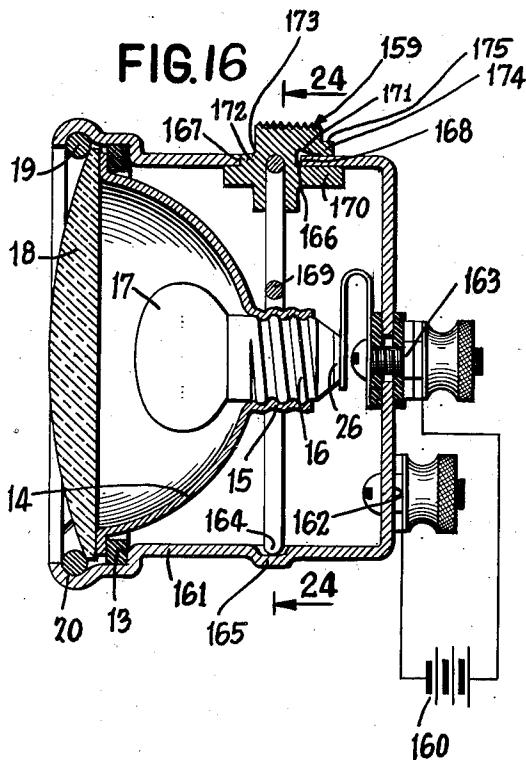
A. E. OSBORN

2,006,175

CIRCUIT CLOSER

Filed March 13, 1930

4 Sheets-Sheet 4



Inventor
Alden E. Osborn
By his Attorneys
Bohleker & Leachetter

UNITED STATES PATENT OFFICE

2,006,175

CIRCUIT CLOSER

Alden E. Osborn, New York, N. Y.

Application March 13, 1930, Serial No. 435,397

6 Claims. (Cl. 240—10.68)

This invention relates broadly to circuit closing devices and more particularly to such devices adapted for use with flashlights and other portable electric lamps.

taken in connection with the accompanying drawings, illustrating various embodiments by which the invention may be realized, and in which:

Figure 1 is a view, in longitudinal section, of a flashlight embodying one embodiment of this invention;

Figure 2 is a fragmentary view showing one end of the flashlight in side elevation, looking from the right in Figure 1.

Figure 3 is a view in transverse section taken in the plane indicated by the line 3—3 of Figure 1, looking in the direction of the arrows, and illustrating the circuit closing device in open circuit position.

Figure 4 is a view similar to Figure 3 but showing the switch in position for making a flash contact.

Figure 5 is a view similar to Figure 3 but showing the switch in position of contact for steady light.

Figures 6, 7 and 8 show a modification of the circuit closer in safety position, flash position and position for steady light, respectively.

Figures 9, 10 and 11 show a modification of the circuit closer of Figure 6 in safety position, flash position and position for steady light, respectively.

Figure 12 is a fragmentary view showing one end of a flashlight in longitudinal section and embodying a composite circuit closer as illustrated in plan in Figure 13.

Figure 13 is a transverse sectional view taken on the line 13—13 of Figure 12.

Figure 14 is a longitudinal sectional view of one end of a flashlight embodying still another modification of the circuit closer, as illustrated in plan in Figure 15.

Figure 15 is a transverse sectional view taken in the plane indicated by the line 15—15 of Figure 14.

Figure 16 is a longitudinal sectional view of a modified electric lantern embodying a modified circuit closer in accordance with this invention.

Figure 17 shows cross-sectional view on the line 24—24 of Figure 16.

For convenience the three positions of the circuit closer of this invention will be referred to as follows: Safety position is that position in which the circuit is open and the circuit closer is locked against movement. Flash position is that position in which the circuit may be closed at will by depressing the operating member and the lamp is illuminated so long as manual pressure is applied. Steady light position is that position in which the operating member is so held by the casing that the circuit remains closed without manual aid.

In the form of the invention illustrated in Figures 1-5, there is shown a flashlight which may

One object of the invention is the simplification of circuit closers whereby conducting elements extending from the battery terminal to the lamp socket are done away with. Accordingly, in the preferred embodiment, the lamp base is insulated from the flashlight casing which is in circuit with one terminal of the battery, the other terminal being in circuit with one lamp terminal, and circuit closing devices are provided to bridge the casing and other lamp terminal.

Still another object of the invention is the provision of a circuit closer which can be inserted and removed as a unit. To this end, the circuit closer comprises a conducting element and an operating member united thereto, which may, if desired, be removably carried with the flashlight casing.

Still another object of the invention is the provision of a circuit closer which is self-retaining in position. According to this aspect of the invention, the conducting members may be of resilient material which yieldingly engages the interior of the casing or suitable seats therein and holds itself in position.

Still another object of the invention is a circuit closer which is capable of a locked or safety position, a flash position and a position of steady light and can be manipulated by one finger. In accordance with the invention, the flashlight casing is formed with a slot and seats in conjunction therewith, the operating member being movable in the slot and the conducting member being positioned on the seats. The operating member is formed with suitable surfaces adapted to selectively engage the walls of the slot to retain the circuit closer in the different positions of open circuit, flash and position of steady light, the resiliency of the conducting member being preferably relied upon to maintain the selective engagement of the several surfaces of the operating member with the edges of the slot.

The invention also has to do with a circuit closer and associated flashlight parts which is practical from the standpoint of ease and cheapness of manufacture and simplicity and convenience in assembly and use.

These and other objects of the invention and the means for their attainment will be more apparent from the following detailed description,

conveniently take the form of a cup shaped cylindrical casing 10 containing the battery of cells 11. The upper or open end of the casing is of increased diameter and is formed with a shoulder 12 supporting a ring of insulating material 13 upon which rests the reflector 14. The reflector is preferably formed with a socket 15 receiving the base 16 of the lamp 17. Upon the reflector rests the lens 18 which is shown as held in place by a bezel ring 19 received in an inwardly facing groove 20 formed in the end of the casing 10. While the casing 10 is illustrated as taking the form of a cup having its bottom end 23 integral with the casing 10, other closure means for the bottom end are equally applicable. A longitudinally acting spring 24 is disposed within the bottom of casing 10 and serves to hold the battery 11 in position and urge its central terminal 25 against the central terminal 26 of the lamp base 16.

Although the upper end of casing 10 is shown as enlarged in diameter, this is not essential to the form of the invention illustrated in Figure 1, but is shown in order to make clear how the invention may be applied to a flashlight having a lens of larger diameter than the casing. The reflector 14 is illustrated as of a diameter less than that of the enlarged open end of the casing 10 and is held in position and spaced from the casing by means of the insulating ring 13 so that the lamp base is normally out of electrical connection with the casing 10, which casing 10 is always in contact with the other terminal of the battery 11 through the spring 24. The circuit through the lamp is normally kept open by the insulating ring 13 but the circuit is completed by electrically connecting the metallic casing 10 and metallic reflector 14 or lamp base 16 supported therein by the circuit closing means of this invention.

The circuit closing means for connecting the casing 10 with the socket 15 as shown in Figures 1 to 5 comprises a combined operating member and conducting member 31—44 positioned against displacement longitudinally of the casing 10 by being disposed in a groove, track or channel 29 formed in the interior of the casing 10. The circuit closing means 31—44 is illustrated as a single rod or piece of wire bent into such shape that it can be inserted into the casing through an opening or slot 30 (Fig. 2) formed therein through which the operating member 31 extends for manual operation. The operating member 31 is formed by bending the wire intermediate its ends so that it forms a suitable button upon which pressure may be exerted in operating the circuit closer. From the button 31 the adjacent portions 32, 33 of the wire are brought together and are then preferably bent at substantially right angles to lie as shown at 34, 35 to form, respectively, a casing interior engaging surface and a casing exterior engaging surface, and are again bent at substantial right angles as at 36, 37, into a direction substantially parallel to but offset from the portions 32, 33 to form abutments adapted to engage, respectively, the ends 45 and 46 of the slot 30. One of the portions say 36, is again bent outwardly at an angle to form the part 38, which is again bent inwardly, as at 39, to form another abutment adapted to engage the slot end 45 and is again bent, as at 40, in the general direction of the part 38. The part 40 forms a portion adapted to engage the casing interior and from it a long end 41 is bent inwardly to lie in a chord of the groove 21 and terminate in a curved portion 42 conforming to the groove 21. The

other portion of the wire 33, 35, 37 is bent slightly toward the part 38, as shown at 43, and terminates in a reversely bent contact part 44.

The circuit closer 31—44 may be considered as comprising generally an operating member 31 and a conducting member 32—44. When in the position shown in Figure 3, it is held in what is termed safety position so that the circuit is open and so that it cannot be closed merely by pressing on the operating button 31; this by reason of the fact that the part 35 rests upon the outside of the casing to prevent depressing the circuit closer. At the same time the circuit closer is prevented from turning bodily in a clockwise direction by reason of the shoulder 39 abutting against the end 45 of the slot 30 and in a counterclockwise direction because the shoulder 37 abuts against the opposite end 46 of the slot 30. Thus the circuit closer is fixed against accidental movement which would result in closing the circuit and only a premeditated manipulation of the circuit closer will effect the closing of the contact.

To move the circuit closer from safety to flash position, in which the button 31 may be depressed at will for momentary contact with the lamp base or reflector to complete the circuit and light the lamp, the circuit closer must be rotated in a clockwise direction to that position shown in Figure 4. In order to effect this rotation, it is necessary to use pressure, say by the thumb, in such a way that the part 38 is pressed inside the casing thereby disengaging the shoulder 39 from the edge 45 of the slot 30 and permitting the circuit closer to be moved circumferentially in the groove 21 the desired amount or until the shoulder 36 engages the end 45 of the slot. When in this position it is possible to make the contact by simply pressing on the operating member 31 of the circuit closer, thereby moving the contact 44 inwardly from the full line position shown in Figure 4 until it contacts with the lamp base 16 or socket 15, as shown in dotted lines in Figure 4, thereby closing the circuit and illuminating the lamp 17. When, however, pressure is released the resiliency of the wire causes it to immediately return to the position shown in full lines in Figure 4 thereby immediately breaking the circuit.

To cause a steady light to be emitted by the lamp 17, the circuit closer is further moved in a clockwise direction to the position shown in Figure 5. This movement is accomplished by first pressing inwardly on the operating member 31 when in the position of Figure 4 to disengage shoulder 36 from the edge 45 of slot 30 until the part 34 comes inside of the slot and then turning the circuit closer in a clockwise direction until the part 32 engages the end 45 of the slot. In this position the part 34 engages the interior of the casing 10 within the groove 21 thereby causing the contact 44 to be held against the lamp base 16 (or socket 15) and a steady light obtained.

The amount of force required to turn the circuit in the casing to the different operating positions just described can be regulated by the abruptness of the several bends and the resiliency of the metal of which the circuit closer is formed. In order to prevent the removal of the circuit closer accidentally through the opening 30 in the casing 10, the small curved part 40 is arranged between the part 38 and the part 41 which, in off position, engages the interior of the casing but all the portions of the circuit closer are so proportioned as to pass through the slot 30 if it is desired to remove the circuit closer. To remove

the circuit closer from the flashlight it is first necessary to forcibly raise the operating member 31 up from its normal operating position and turn the circuit closer in a direction to cause the curved part 40 thereof to clear the casing 10.

Figures 6, 7 and 8 illustrate a modification of this invention in which the circuit closer also comprises a combined operating member 50 and conducting member 51—63 and may be formed of either a piece of rod or wire or a strip of metal which wire or strip is held from longitudinal movement in the casing by a track or groove 21 in the casing 10 as before. This circuit closer is intended to be introduced into the casing 10 after the reflector 14 and other adjacent parts have been removed so that it may be simply pushed into place by compressing it to reduce its external diameter and passing the operating member or button 50 through the slot 30 in the casing 10 from the inside.

Figure 6 shows the circuit closer in safety or inoperative position. The button 50 is formed by two or more corrugations intermediate the ends of the strip. On one side 51 of button 50 the strip is bent sharply to the left to form the part 52 which corresponds in function to the part 34 shown in Figure 3. This end of the strip is then, at 53, reversely bent to form the casing exterior engaging part 54 which extends to about the mid-portion of the button 50 and in off position this part overlies the outside of the casing 10 as does the part 35 in the modification of Figure 3. This part of the strip is again reversely bent, at 55, to provide a part 56 spaced from the part 54 a distance sufficient to receive the wall of the casing therebetween as shown in Figure 6. The part 56 is deflected away from the part 54 and extends for a greater distance and is again reversely bent as at 57 to form the lamp base engaging contact 58, the part 57 yieldingly engaging the wall of the casing 10. The other portion of the strip extends inwardly as at 60 in a generally radial direction so as to substantially reach the slot 30 and is then bent to extend in a clockwise direction and lie approximately in the slot 30 to form the part 61 corresponding in function with the part 32 of the circuit closer illustrated in Figure 3. This portion 61 is then bent inwardly as at 62 to form a shoulder corresponding to shoulder 39 (Figure 3) and is then bent on the arc of a circle as at 63 to lie within the groove 21 and have the function of the parts 41—42 of the embodiment of Figure 3. In off position (Figure 6) outward movement is prevented by the part 55 underlying the edge 46 of the slot 30 and turning movement in either direction is prevented by the respective abutments 55 and 62. Inward movement is prevented by the part 54 overlying the casing edge 46.

When an intermittent illumination or flash is desired the part 61 is depressed to disengage shoulder 62 from the slot end 45 and the circuit closer turned as before in a clockwise direction until the part 60 engages the end 45 of the slot 30 as shown in Figure 7. In this position the end 53 can clear the end 46 of the slot 30 and permit inward movement, when pressure is applied to the operating member 50, and thus bring the contact 58 into electrical connection with the socket 15 or lamp base 16 as shown in dotted lines in Figure 7. When pressure is released, of course, the resiliency of the end 63 causes the contact 58 to leave the lamp base and open the circuit again.

To obtain a steady light, pressure is first applied to operating member 50 to bring the part 52 through the slot 30 as for an intermittent flash and then the circuit closer is turned to the left, that is, in a counter-clockwise direction as viewed in the drawings, to bring the part 52 beneath the edge 46 of the slot 30 against which it will be held by the resiliency of the ends 63, the parts 61 and adjacent end of part 63 being bent inwardly thus increasing the tension. When the part 52 is beneath the edge 46 the contact 58 is held against the lamp base and the compression of contact 58 also aids in holding the circuit closer in position.

This device thus functions similarly to that described in connection with Figures 1 to 5 except that with this modification, the circumferential movement to lock the circuit closer to complete the circuit for steady light is in the same direction as that to lock the circuit closer in safety position, instead of being in the opposite direction as with the embodiment illustrated in Figures 1—5.

Figures 9, 10 and 11 illustrate a modification of the circuit closer shown in Figures 6 to 8 in which similar reference numerals are used to designate identical parts. Instead of having the part 61 that locks the circuit closer in open circuit position move inwardly in order to allow the turning of the circuit closer to an operating position, this part 61 is arranged so that it is raised outside of the casing and moves around the outside thereof as shown in Figures 10 and 11 which show the circuit closer moved to flash and steady light position, respectively. In order to permit movement of the part 61 outside of the casing 10, part 60 does not act as a stop, as will be understood, and the opposite end of the strip is continued on past the part 57 on the arc of a circle within groove 21 for approximately 180°, as at 70, and then reversely bent into another arcuate spring-like portion 71 which carries a reversely bent contact part 72.

Figures 12 and 13 show another modification of the circuit closer. This circuit closer is conveniently made in two parts, to wit: an operating member and a conducting member. A rod or piece of wire or strip forms the conducting element and, preferably, an insulating button comprises the operating member which extends through the slot in the casing and is formed with notches engaging the edges of the slot in the casing to function exactly as the parts hereinbefore described. The circuit closing means is shown in this figure as being restrained from sideways motion by suitable projections 75 formed in the casing 10 at each side thereof instead of by a continuous groove or track therein, this arrangement, or a circular groove being simply a matter of preference from a manufacturing and appearance standpoint in any of the modifications. The circuit closer parts are intended to be inserted in the casing when the lens, reflector, etc., are removed in exactly the same manner as the circuit closer shown in Figures 6 through 8. The conducting member as shown, comprises a strip or wire bent intermediate its ends in a single fold as at 76 to carry an operating member 77. On each side of the fold 76 the parts 78 and 79 are turned in opposite directions, the shorter end 78 being reversely bent to form the contact 80, preferably lying immediately inwardly of the button 77. The other and longer end 79 is continued and conveniently bent into a concentric curve which may, if desired extend for more than 180 degrees as

shown. The operating member 77 is serrated on its top to provide a grip, as shown at 82, and is formed with a finger or extension 83 having a top surface 84, a bottom surface 85 and an end 86 which may desirably, be bevelled to facilitate entrance into the slot 30. Above this finger 83 the operating member is formed with a shoulder 87 having an upper surface 88 at a greater radial distance from surface 85 than the surface 84 and also formed with a surface at right angles thereto, as a stop 90. On the other side of the bend 76 the operating member is formed with a slot 91 of such length that the circumferential distance between the inner end of the slot 91 and the end 86 of the finger 83 is sufficient to be received between the ends of the casing slot 30.

Inwardly of the slot 91 the operating member 77 is formed with an extended portion or guide 94 directed oppositely to the finger 83 which portion 94 is preferably formed with curvilinear surfaces to conform to the interior of the casing, the part 94 being of such length that the circumferential distance from its end 95 to the abutment 90 is greater than the length of the slot 30. The portion of the operating member 77 defining the slot 91 may be considered as forming fingers 94 and 96.

Normally this circuit closer is locked against accidental operation by reason of the fact that the edge 46 of the slot 30 is received in the slot 91 between fingers 94 and 96 and the end of finger 83 lies in the cylindrical plane of the casing 10 and abuts against the opposite edge 45 of the slot 30. Thus accidental operation of the circuit closer is prevented, the finger 96 preventing inward movement of the circuit closer.

To bring the circuit closer to flash position the operating member 77 is first tipped to bring the end 86 below the edge 45 of the slot 30 and is then moved in a clockwise direction until the abutment 97 on finger 96 clears the other end 45 of the slot 30 and the shoulder 90 abuts against the edge 45. The thumb piece 77 may then be pressed inwardly against the action of spring 79 to bring contact 80 into engagement with the lamp base 15 or socket 16 to close the circuit.

As soon as pressure is released the resiliency of spring 79 pushed the operating member outwardly in a radial direction carrying with it the contact 80 and breaking the connection.

To obtain a steady illumination of the lamp the operating member 77 is depressed from the flash position just described and again shifted in a clockwise direction as viewed in Figure 13 to bring the surface 88 underneath the edge 45 of the slot 30 and thus hold the contact 80 against the lamp base 15 or socket 16 to keep the electrical circuit closed.

Obviously other ways of securing the conducting member 78-80 to the operating member will be at once apparent to those skilled in the art as for instance by riveting the members together instead of embedding the loop 76 in the operating member.

The structure shown in Figures 14 and 15 is substantially the same in principle as that shown in Figures 12 and 13 and so far as the shape of the conducting member is concerned is identical with that shown in Figures 6, 7 and 8, like reference numerals being applied to corresponding parts of both groups of figures. A resilient metallic strip or ribbon is formed into a bend 100 and portions of both ends proximate thereto are positioned closely together as at 101. At an appreciable distance from the end 100 the portions 101 are bent at substantial right angles while closely

positioned together as at 102, 103. The bends 102, 103 correspond in function to the part 55 and shoulder 60 of the modification of Figures 6, 7 and 8. The remaining portions of the strip are numbered the same and function the same as in the latter figures and need no further description. here. The thumb piece 105 takes the form of an arcuate member, preferably channeled in cross-section, having a lug 106 pressed inwardly therein or otherwise carried therewith, said lug 106 being secured to the portions 101 of the strip in any suitable fashion as by rivets or welding. This lug 106 is spaced from the shoulder 102 a distance sufficient so that the end edge 45 of the slot 30 is engaged by the side 107 of the lug 106 and between the arcuate thumb piece 105 and the extremity of the portions 101. Then the shoulder 102 engages the opposite edge 45 of the slot 30 and the circuit closer is in position to afford a steady light. This form of thumb piece 105 also serves to cover the slot as a shield. While the shield 105 is shown as channel shaped such form is not always essential but the strengthening flanges 108 are shown as a preferred embodiment and may be bent down and when the circuit closer is depressed will enter the grooves 109 in the casing 10 which define the track 21 for the strip and thus further enclose the parts and improve the appearance of the flashlight.

In Figures 16 and 17 is illustrated a still further modification of my circuit closing means which is shown as applied to a slightly different form of lamp from that illustrated in Figures 1, 12 and 14. In these figures, the battery 160 is shown outside the casing 161 and has one terminal connected to the casing at 162, while the other terminal is connected by a suitable contact 163 to one terminal of the lamp. The circuit closing means acts between the casing 161 and the other terminal 16 of the lamp or its socket 15 as in the foregoing forms. The circuit closing means is arranged so that it does not rotate in the casing but is held therein by having its end 164 fit in a socket or notch 165 therein or fastened to it by any other suitable means. It is actuated by an operating means 159 similar to that heretofore described in which the operating means may be moved circumferentially, but which in the present instance is shown as being moved longitudinally to cause the circuit closer to assume positions of safety, flash and steady light. Owing to the limited space that can usually be provided for such longitudinal movement the operating member need not have as much movement for the different positions as where a circumferential movement is employed.

A longitudinally extending slot 166 is defined in part by opposed end edges 167, 168. The operating member includes a guide part underlying all the edges of the slot at all times and secured to the conducting member in suitable fashion on the opposite side of the casing from the notch 165, the end 169 of the spring opposite to end 164 being reversely bent to form the contact 169.

The operating member is the same in principle as that discussed in connection with Figures 12 and 13 but the several shoulders and notches are so disposed that the operating member is moved first in one direction and then in the opposite direction for the different positions while the operating member shown in Figures 12 and 13 is moved along in the same direction. The operating member has a guide portion 170 underlying the edges of the slot 166 on all sides. Above the

guide 170 at one end, say over the edge 168 of the slot 166, the operating member is formed with a slot 171 of a radial width sufficient to freely receive the wall of the casing. At the same radial distance as the slot 171 the operating member is formed on its opposite end with a shoulder or abutment 172 and the axial distance between the end of the slot 171 and the face of abutment 172 is slightly less than the length of the casing slot 166 so as to provide freedom of movement in tipping the operating member in its movement from safety to flash position.

In flash position, the edge 167 is received in the set back or recess 173, the shoulder 174 on the opposite end positioning the same in the slot. It will be noted that the distance between set back and shoulder being substantially equal to the length of the slot. In this position the contact 169 may be brought against the lamp terminal to give a light whenever the operating member is pressed.

To afford a steady light the operating member is further depressed until the set back or surface is within the casing and then moved to the right as viewed in Figure 16 when the surface 175 is held beneath the casing and the contact 169 is held in contact with the lamp terminal to complete the circuit.

It will thus be seen that a particularly simple circuit closer has been provided which, when applied to flashlights or other hand lanterns, results in a reduction in the number of parts and, in all, simplifies manufacture and assembly and permits an ease of operation not found in most circuit closers while the operating member therefore is capable of being locked in either open circuit or steady light positions.

Various modifications will occur to those skilled in the art in the relation, composition, interchangeability and configuration of the component parts going to make up the circuit closer as a whole as well as in the manner of its application and no limitation is intended by the phraseology of the foregoing description or illustrations in the accompanying drawings except as indicated in the appended claims:

What is claimed is:—

1. In an electric flashlight of the class described having a battery, a casing formed with an aperture, means carried with the casing in electrical connection with one terminal of the battery, a lamp carried with the casing and insulated therefrom and having its central terminal in electrical connection with the other terminal of the battery, means to close the circuit between the first named means and the other terminal of the lamp comprising a substantially volute deformable conducting member lying in and deformable in a transverse plane including the lamp base and in electrical connection with the first named means and having a contact end movable transversely of the casing into electrical contact with the peripheral terminal of the lamp base upon the deformation of the conducting member, an operating member movable in the aperture and carried with the conducting member and extending exteriorly of the casing, said operating member having portions adapted to selectively engage the edge of the aperture to selectively permit and maintain, at will, depression of said operating member to deform the said conducting member and move the contact end into circuit making position.

2. In a flashlight of the class described, in combination, a casing formed with an aperture,

a lamp, a battery having one terminal in electrical connection with a terminal of the lamp, conducting means carried with the casing in electrical connection with the other terminal of the battery, circuit closing means comprising a deformable conducting member in electrical connection with the conducting means and movable into and out of electrical contact with the other terminal of the lamp and operating means movable in the aperture comprising abutment means and recess means adapted to selectively engage opposed edges of the aperture to retain the deformable conducting member out of electrical contact with said lamp terminal, an edge engaging portion adapted to position the operating member in the aperture for depression of the operating member therein to cause the deformable conducting member to move into electrical contact with the lamp terminal and means to engage the edge of the aperture to so position the operating member in the aperture that the conducting member is maintained in electrical contact with said lamp terminal.

3. In a flashlight of the class described, in combination, a casing formed with an aperture, a lamp, a battery having one terminal in electrical connection with a terminal of the lamp, conducting means carried with the casing in electrical connection with the other terminal of the battery, a deformable conducting member in electrical connection with the conducting means and movable into and out of electrical contact with the other terminal of the lamp, an operating member of non-conductive material operatively connected with the deformable member and movable in the aperture comprising abutment means and recess means adapted to selectively engage opposed edges of the aperture to retain the deformable conducting member out of electrical connection with said lamp terminal, an edge engaging portion adapted to position the operating member in the aperture for depression of the operating member therein to cause the deformable conducting member to move into electrical contact with said lamp terminal and means to engage the edge of the aperture to so position the operating member in the aperture that the conducting member is maintained in electrical contact with the said lamp terminal.

4. In a flashlight of the class described, in combination, a casing formed with an aperture, a lamp, a battery having one terminal in electrical connection with a terminal of the lamp, conducting means carried with the casing in electrical connection with the other terminal of the battery, a deformable conducting member in electrical connection with the conducting means and movable into and out of electrical contact with the other terminal of the lamp, an operating member of moldable non-conductive material operatively connected to the deformable member and movable in the aperture, comprising a guide portion underlying an edge of the aperture, an abutment and a recess oppositely directed with respect to one another and distanced from one another substantially equal to the length of the aperture, a stop portion and an abutment distanced from one another substantially equal to the length of the aperture, said stop portion adapted to engage an edge of the aperture for flash position, and a surface adapted to be disposed within the edge of the aperture for steady light positions.

5. In a flashlight of the class described, in combination, a casing formed with an aperture, a lamp, a battery having one terminal in electrical connection with a terminal of the lamp, conducting means carried with the casing in electrical connection with the other terminal of the battery, a deformable conducting member in electrical connection with the conducting means and movable into electrical connection with the other terminal of the lamp, an operating member connected to the deformable member, movable in the aperture, comprising a metallic ribbon bent substantially sinusoidally intermediate its ends to form an operating member, the adjacent sections thereto reversely bent and joined to form a casing exterior engaging section on one side to retain the deformable conducting member in electrically disconnected position, and an abutment on the other side to engage the edge of the aperture to position the thumb piece to be depressed and cause the deformable member to move into electrical connection with the lamp and the conducting means, the adjacent sections thereto oppositely bent to extend in the directions of the walls of the casing to form casing interior engaging surfaces, the section adjacent thereto on one side reversely bent to form a contact member and the section adjacent thereto on the other side bent to form a second abutment to engage the edge of the aperture to prevent accidental dislodgment of the deformable conducting member from its electrically disconnected position.

6. In a flashlight of the class described, in

combination, a casing formed with an aperture, a lamp, a battery having one terminal in electrical connection with a terminal of the lamp, conducting means carried with the casing in electrical connection with the other terminal of the battery, a deformable conducting member in electrical connection with the conducting means and movable into electrical connection with the other terminal of the lamp, an operating member integrally connected to the deformable member, movable in the aperture, comprising a metallic ribbon bent intermediate its ends to form an operating member and reversely bent and joined to form a neck therefor, the adjacent sections thereto bent in the directions of the aperture walls to form casing interior and exterior engaging surfaces selectively operable to retain the deformable member in electrically connected and electrically disconnected positions, the adjacent sections thereto bent radially of the casing to form abutments to selectively engage opposite edges of the aperture to position the thumb piece to be depressed to move the deformable member into electrically connected position and to position the casing exterior engaging surface to hold the deformable member in electrically disconnected position, one of the sections adjacent thereto bent to form a contact portion and the other to form a second abutment to engage the edge of the aperture to prevent the dislodgment of the casing exterior engaging surface from its last named position.

ALDEN E. OSBORN.