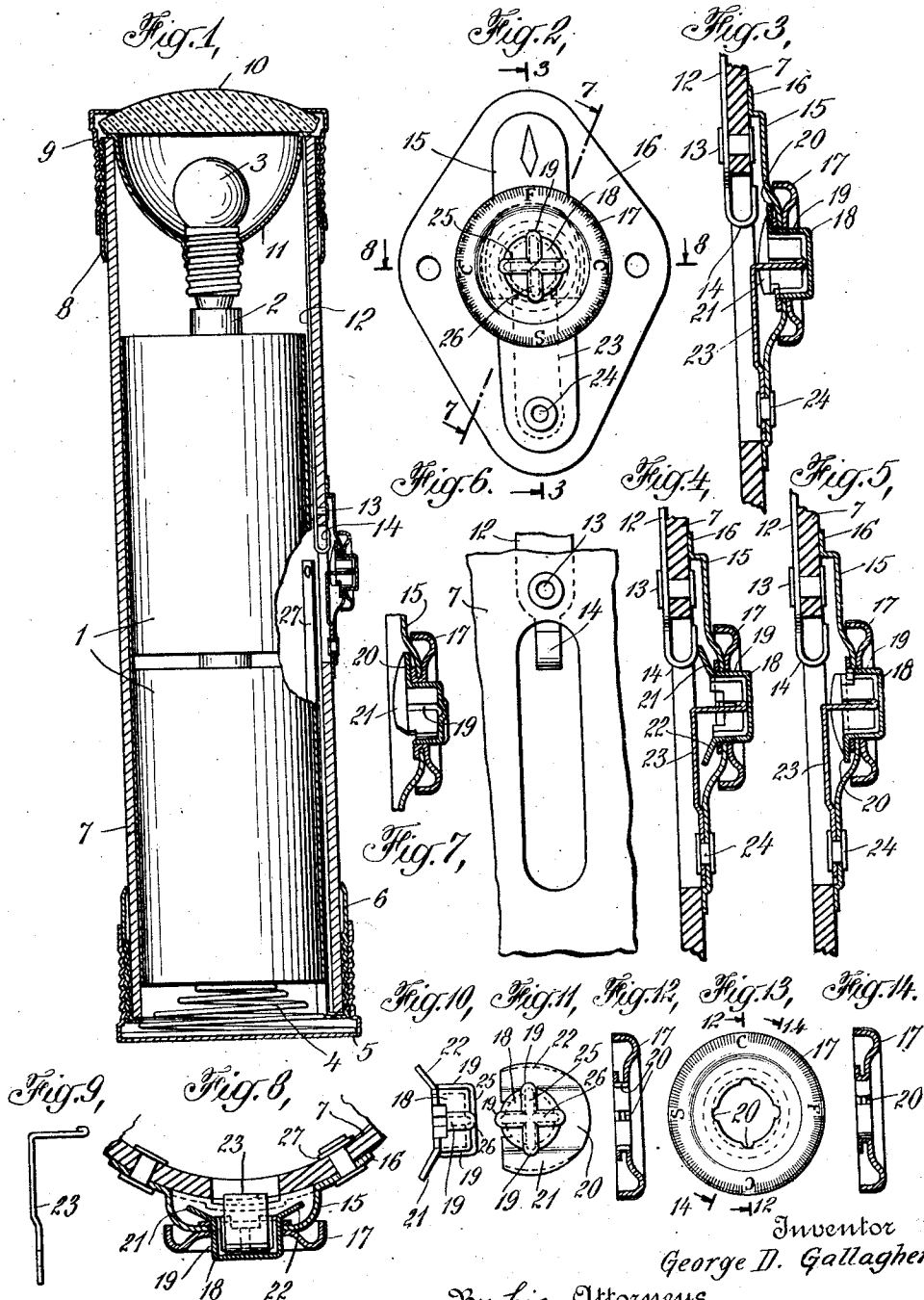


G. D. GALLAGHER.
HANDLAMP SWITCH.
APPLICATION FILED NOV. 22, 1919.

1,419,728.

Patented June 13, 1922.



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UNITED STATES PATENT OFFICE.

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HANDLAMP SWITCH.

1,419,728.

Specification of Letters Patent. Patented June 13, 1922.

Application filed November 22, 1919. Serial No. 339,795.

To all whom it may concern:

Be it known that I, GEORGE D. GALLAGHER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Handlamp Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to portable lamps of a character comprising a battery and a small incandescent electric lamp with a switch suitably positioned to control the flow of current from said battery through said lamp.

In devices of this general character, it is desirable that the operator be able to flash the lamp, that is to say, light it momentarily as in signaling, or for such short periods of time as it is convenient for the operator to hold his thumb on the switch mechanism. It is also desirable that the contact device be so arranged as to give a permanent or continual lighting of the lamp without the need for continuing thumb pressure on the contact device. There is also a need for rendering the contact device inactive to prevent inadvertent lighting of the lamp through accidental manipulation of the contact device, as when the hand lamp is carried about in a tool kit, or is being stored or transported with its battery in place.

It is an object of the present invention to satisfy any and all of the foregoing requirements by a contact means of simple and economical construction, easy to manufacture and assemble, and reliable in its action.

Other objects and advantages are herein-after pointed out and will be clear from the following detailed description, which is to be taken in conjunction with the accompanying drawings, wherein—

Figure 1 is a sectional elevation of a hand lamp embodying the present invention;

Fig. 2 is an enlarged plan of the switch or contact mechanism;

Fig. 3 is a fragmentary section on the line 3—3 of Fig. 2;

Figs. 4 and 5 are corresponding sections with the switch button rotated from the position illustrated in Fig. 3;

Fig. 6 shows the slot in the casing over which the switch mechanism is mounted;

Fig. 7 is a fragmentary section on the line 7—7 of Fig. 2;

Fig. 8 is a transverse section on the line 8—8 of Fig. 2;

Fig. 9 is a detail of the push button spring;

Figs. 10 to 14, inclusive, are details of the push button and of the disc in which it is mounted and by which it may be rotated.

In the embodiment illustrated, a plurality of dry cells 1 are arranged end to end with the upper or carbon electrode 2 of the topmost cell making contact with the inner terminal of the lamp 3, and the naked or zinc bottom of the lowermost cell making electrical connection through the coil spring 4 with a metal cap 5 threaded to a collar 6, positioned on the lower end of the casing 7. This casing may be of fiber or other material commonly used in hand lamps, and may be provided at its front end with a threaded collar 8 carrying a flanged ring 9 by which the lens 10 and lamp reflector 11 are held in position. Preferably the edge of reflector 11 is spaced from collar 8 and ring 9 to make the hand lamp non-short-circuiting, but these and other details of the device may be varied in many ways.

Connected with the outer terminal of the lamp 3, as through reflector 11, is a conductor 12, which may be in the form of a flat strip running along the inner wall of casing 7 and secured near its lower end by a rivet 13. The lower end of conductor 12 is preferably bent in the form of a hook 14, which protrudes through an elongated slot in casing 7, as shown in Fig. 6. Positioned over this slot is a sheet metal housing 15 with an escutcheon plate 16 by which the housing may be suitably riveted to casing 7. The central portion of this housing is dish-shaped outwards, as shown in Fig. 3, and has a circular opening to receive the flanged inner edge of a rotatable disc 17, wherein the push button 18 of the contact device is mounted and by which it may be rotated. The push button is preferably of hollow sheet metal with four projections 19 pressed in the side walls thereof to engage with four recesses 20 in the inner edge of the flanged disc 17. The push button is thus free to move in and out,

but cannot rotate axially, except when disc 17 also rotates. The push button carries at its inner edge a flange of irregular shape, as shown in Fig. 11, with one side cut away entirely, with the opposite side 20 left flat, and the two remaining sides 21 and 22 bent inwardly, as shown in Fig. 10.

Movements of the push button are controlled by a bent leaf spring 23 (Fig. 9), the lower end of which is fastened to the housing by a rivet 24, and the upper, broad, flat end of which fits within the hollow push button 18 to urge that push button outward. The circular face of the push button, against which spring 23 bears, may be pressed outwardly, as shown in Fig. 11, to form a pair of intersecting grooves 25, 26, in which the outer end of spring 23 is received, and by which accidental rotation of the push button is avoided; and it turns from one position to the other with a snap.

With the several parts in the position shown in Fig. 3, thumb pressure on push button 18 will bring the flat segment 20 of its flange into engagement with the upturned end 14 of the conductor from the lamp, and will thereby complete the circuit from the battery through the lamp, it being understood that spring 23, housing 15 and escutcheon 16 are electrically connected with the bottom of the dry cells as through a flat strip 27 (Fig. 1), leading to the metal fittings at the bottom of the casing 7. It is in this way that the lamp is flashed, i. e., is lighted for such periods of time as it is convenient for the operator to hold his thumb on the push button. But if a permanent lighting of the lamp is desired, the operator slides his thumb along the edge of disc 17 and thereby rotates the disc and with it the push button, until one or the other of the bent flanged segments 21 or 22 swings around over the bent and yielding end of conductor 14 and rides thereover with a wiping action and so completes the circuit without the need for pressure on the push button. The outer edge of disc 17 may be knurled, as indicated diagrammatically in Fig. 13, to facilitate this rotation.

But if lighting of the lamp is to be avoided, as when the hand lamp is being shipped through the mails, or is being carried as baggage or in the tool kit of an automobile, the push button can be rotated still further until it assumes the position shown in Fig. 5, with the cut-away portion of its flange over conductor 14. Thumb pressure on the push button in this axial position will not bring any part of the button into contact with conductor 14 to light the lamp. Rotation of the push button and its disc 17, though entirely feasible from an operating standpoint, is not likely to occur accidentally, because of the seating of spring

23 in one of the recesses formed in the inner circular part of the push button.

I am aware that details of the switch mechanism may be varied within the scope of the appended claims, and it will be apparent that the shape, size and materials of various parts of the hand lamp structure with which this contact device is used, may be altered in many ways without departing from the spirit of my invention as defined by the appended claims.

I claim:—

1. A contact device for battery hand lamps comprising a conductor, a push button opposed thereto for flashing the lamp, said push button having a working face asymmetrical with respect to said conductor, and means for rotating said push button to a position where its asymmetrical working face will be ineffective to connect with said conductor when lighting of the lamp is to be avoided.

2. A contact device for battery hand lamps comprising a push button, a contact opposed thereto, said push button having a working face of irregular outline and means for rotating said push button into continuing engagement with its opposed contact when permanent lighting of the lamp is desired.

3. A contact device for a battery hand lamp comprising a conductor, a push button opposed thereto for flashing the lamp, said push button being asymmetrical with respect to said conductor, and means for rotating said push button to a position where its asymmetrical working face will be ineffective to connect with said conductor when lighting of the lamp is to be avoided, or into a position where its asymmetrical working face will be in continuing contact with said conductor.

4. A contact device for battery hand lamps comprising a push button, a conductor opposed thereto, said push button being asymmetrical with respect to said opposed conductor and being adapted by rotation to assume different positions with respect to said opposed conductor, in one of which it may be pressed against said conductor to flash the lamp, in another of which it contacts with said conductor and lights the lamp without being depressed, and in another of which it is ineffective to light the lamp, substantially as described.

5. A contact device for battery hand lamps, comprising a flanged push button and a disc through which said push button passes and by which it may be rotated, a part of said flange being recessed to render said push button ineffective when lighting of the lamp is to be avoided.

6. A contact device for battery hand lamps, comprising a housing, a disc rotatably carried thereby, a push button passing through said disc and asymmetrically shaped for

either permanent or temporary engagement with an opposed conductor, and a spring for controlling the movements of said push button.

5 7. A contact device for battery hand lamps, comprising a housing having a circular opening, a flanged disc mounted to rotate in said housing and having recesses in its inner edge, a push button having projections en-
10 gaging said recesses and rotatable thereby, and a spring urging said push button outward, said push button having a flange of irregular shape permitting permanent or in-
15 termittent lighting of the lamp as desired, substantially as described.

8. A contact device for battery hand lamps comprising a spring-pressed push button having an asymmetrical face, a contact op-
20 posed thereto, said push button being ro- tatable axially into a plurality of positions in one of which it may be depressed into en-
gagement with said opposed contact to flash the lamp, and in another of which its de-

pression will be ineffective to reach said con-
tact and light the lamp, substantially as de- 25
scribed.

9. A contact device for battery hand lamps, comprising a push button having an irregu-
lar working face and being rotatable axially
30 into a plurality of positions, in one of which it may be depressed to flash the lamp, in an-
other of which it will light the lamp with-
out being depressed, and in another of which
its depression will be ineffective to light the
35 lamp, and a spring for controlling the move-
ments of said push button, substantially as
described.

10. A contact device for battery hand lamps, comprising a flanged push button and
a disc through which said push button passes 40
and by which it may be rotated, a part of
said flange being cut away to render said
push button ineffective when lighting of the
lamp is to be avoided.

In testimony whereof I affix my signature. 45
GEORGE D. GALLAGHER.