Oct. 1, 1946. C. H. McCLURE 2,408,568

LOW VOLTAGE FLASHER

Filed July 4, 1942

Fig. 1.

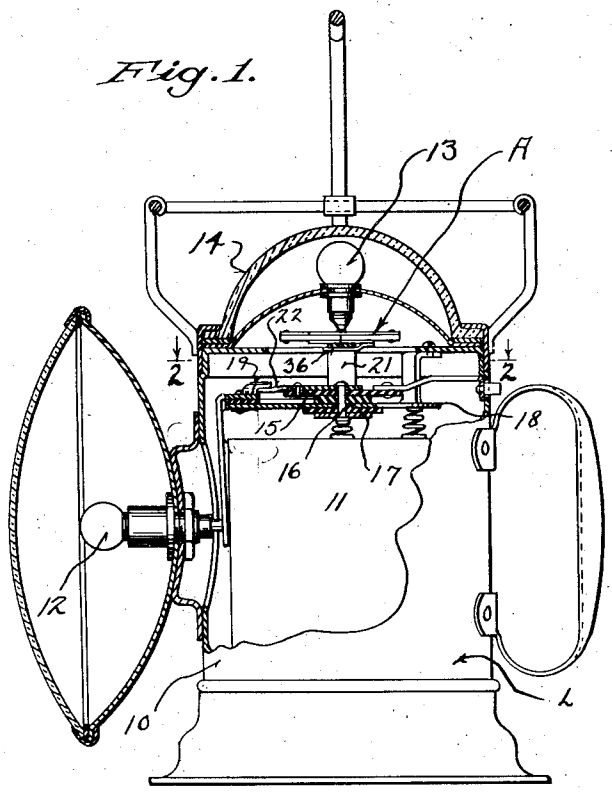



Fig. 2.

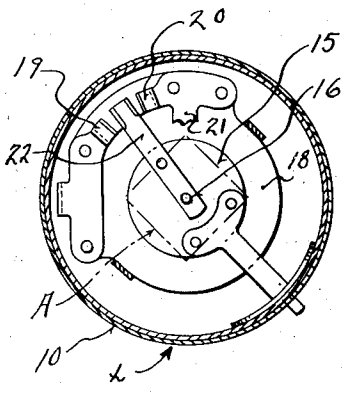



Fig. 3.

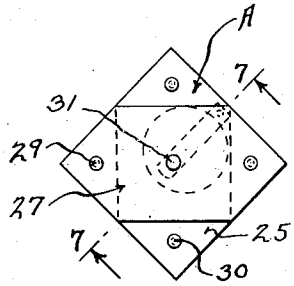



Fig. 4.

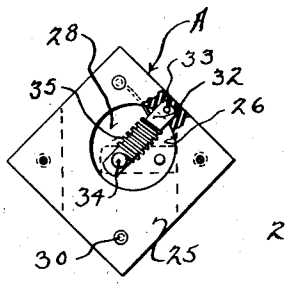



Fig. 5.

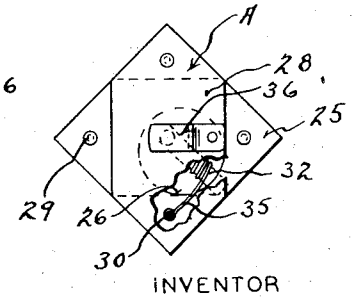
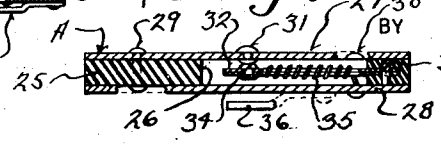



Fig. 6




Fig. 7.




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# UNITED STATES PATENT OFFICE

2,408,568

## LOW VOLTAGE FLASHER

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Application July 4, 1942, Serial No. 449,775

1 Claim. (Cl. 200—122)

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This invention appertains to self-contained electric flash lights, hand lanterns and the like and more particularly to a novel flasher appliance for low voltage electric lamps.

While my invention is susceptible for use on any low voltage electric light, one of the primary uses of my device and one of the primary objects of my invention is to provide a flasher or winker for use in conjunction with electric signaling lanterns commonly employed by automobile drivers during the changing of tires or the making of repairs while on a highway to warn traffic of such stop for repairs and thus eliminate accidents caused by vehicles being stalled on the highway.

Another salient object of my invention is to provide a flasher or winker attachment for electric hand lights, which is of an exceptionally simplified and compact order, whereby the same can be readily and easily placed in a confined space in an ordinary flash light without any change in the construction of said lantern or flash light.

A further object of my invention is to provide a flasher or winker which will effectively operate on low voltage electric hand lanterns or the like embodying a thermostatic blade carrying a contact which normally engages a stationary contact on one of the conducting plates of the flasher, whereby as soon as the control switch is turned on the current will be completed through the electric bulb, thereby causing the instant lighting of the bulb and the flashing thereof upon the heating of the blade, the construction allowing the lighting of the bulb even with a weak current which would not cause the heating of the blade.

A further important object of my invention is the provision of a fine Nichrome wire wound about the bi-metallic or thermostatic blade through which the current flows direct from the lower contact plate to the upper contact plate, so as to permit the effective operation of the flasher even in extreme low temperatures, the construction being such that the flashing of the bulb is insured until a temperature is reached which would affect the operation of the battery itself.

A still further important object of my invention is to provide a flasher or winker which can be manufactured at a low cost and in which all working parts are enclosed and thereby protected against dirt, grease or the like, and one in which the parts will not be affected by rough handling.

A still further important object of my invention is the provision of means carried directly

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by the flasher or winker for detachable engagement with the central contact of the hand lantern whereby not only will the flasher or winker be effectively held in place against accidental displacement but whereby the correct installation of the flasher or winker in the lantern is insured.

With these and other objects in view the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed and illustrated in the accompanying drawing, in which drawing:

Figure 1 is a side elevational view of a portable electric hand lantern with parts thereof broken away and in section and illustrating my novel flasher or winker attachment associated therewith.

Figure 2 is a horizontal sectional view through the lantern taken on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a top plan view of my novel flasher or winker attachment.

Figure 4 is a horizontal sectional view through the flasher or winker taken substantially on the line 4—4 of Figure 6 looking in the direction of the arrows.

Figure 5 is a bottom plan view of the flasher or winker, with a part of the bottom contact plate broken away.

Figure 6 is a side elevational view of the flasher or winker.

Figure 7 is a transverse sectional view through the flasher or winker taken on the line 7—7 of Figure 3 looking in the direction of the arrows, the view being taken on the larger scale than Figures 3 to 6 inclusive.

Referring to the drawing in detail wherein similar reference characters designate corresponding parts throughout the several views the letter "L" generally indicates a portable, self-contained electric hand lantern and "A," my novel flasher or winker attachment therefor.

The hand lantern L is of a common type now sold on the open market and hence the same will not be described in detail, but it is to be noted that the same includes a casing 10 which detachably receives and houses an electric battery 11. One side of the casing 10 carries an electric light or bulb 12 for illumination and the top of the casing carries a bulb 13 for signaling purposes. The bulb 13 is preferably inclosed by a red transparent dome 14 so that the light emanating from the bulb will be of a red color when viewed through the dome. The lighting of the lamps 12 and 13

is controlled by a movable switch plate 15. This switch plate rotates on an axially disposed pin 16 which is in electrical contact with a bottom central contact member 17 which engages the central contact or terminal of the battery 11. The side contact or terminal of the battery is in electrical contact with a supporting switch plate 18, which is grounded to the frame or casing of the lantern. As in the usual construction the side contacts of the bulbs 12 and 13 are also grounded to the frame of the lantern. Insulated from the plate 18 is a pair of stationary jaws 19 and 20. One of these jaws 19, is in electrical communication with the center contact of the bulb 12 and the jaw 20 is in electrical contact with the base or center contact of the bulb 13 through the medium of a centrally disposed resilient contact arm 21. By turning of the switch plate 15, a contact arm 22 mounted thereon and in electrical contact with the stud 16 can be moved into engagement with either one of the jaws 19 or 20.

In accordance with my invention, the novel flasher or winker A is adapted to be placed between the resilient contact arm 21 and the base or central contact of the bulb 13 as can be clearly seen by referring to Figure 1.

This winker or flasher attachment A includes a main body plate 25 constructed from fibre or some suitable insulating material and this body plate is preferably, but not necessarily, of a square shape when viewed in plan. The body plate 25 can be provided with an opening 26 as is clearly shown in Figures 4 and 7 or if preferred the body plate can be of an open frame-like construction. Connected to the upper and lower faces of the body plate 25 is a top conducting plate 27 and a bottom conducting plate 28. These plates 27 and 28 are formed from relatively thin sheet metal and can be in the nature of strips which extend across the body plate at right angles to one another. The top plate 27 is held in place by studs or fastening elements 29, while the lower plate 28 is held in place by independent studs or fastening elements 30. Secured centrally to the top conducting plate 27 is a contact point 31 which is preferably formed from silver. Arranged within the opening 26 in the body plate 25 is a thermostatic blade 32. The blade 32 is of a well known construction and can consist of two strips of metal having different co-efficients of heat expansion. The outer end of the blade is firmly anchored in the body plate 25, as at 33 and the other end of the blade carries a contact point 34, which can be formed from silver or the like, and this contact point 34 normally engages the contact point 31. By referring to Figure 7, it can be seen that the blade is supported by the body plate of insulation and hence does not engage either the top or bottom plate 27 or 28. However, its contact point 34 engages the contact point 31 carried by the top plate 27. A fine Nichrome wire 35 is wound about the blade 32 and one end of the wire is electrically connected to the contact point 34 and the inner end of the wire is in electrical contact with the bottom plate 28, such as through the medium of one of the fastening studs 30.

Also, in accordance with my invention the bottom plate 28 has riveted thereto a spring clamp 36 and this spring clamp projects toward the center of the flasher or winker.

In installing the winker or flasher, the dome 14 and associated parts including the reflector and bulb 13 is removed from the hand lantern and the winker is placed on the resilient contact arm 21. This is accomplished by merely slipping



the clamp 36 underneath the arm 21. Obviously this will firmly hold the winker or flasher in correct position against displacement. The bulb and other parts of the lantern are now placed back in their normal position and the center contact of the bulb will engage the contact 31 of the winker. The lantern is now ready for use for signaling purposes and when the switch plate thereof is operated to the proper position current will flow from the battery 11 to the stud 16 through the switch blade 22, jaw 20, resilient arm 21, lower contact plate 28, the fine Nichrome wire 35, the contact points 34 and 31 through the bulb, through the lantern casing to supporting plate 18 and back to the battery 11 through its side terminal. When this circuit is completed the bulb 13 will instantly light and after a few moments the thermostatic blade 32 will heat causing a momentary breaking of the circuit through the bulb 13. As the thermostatic blade cools current flow will again be established and the flashing of the bulb 13 is continued as long as the switch is maintained in its closed position for said bulb.

As the inherent resiliency of the switch blade normally holds the contact 34 in engagement with the contact 31 all adjustment of contact points is eliminated and the flasher or winker A will not be affected by extreme cold temperatures and hence the operation of the lantern for signaling purposes is insured. Great stress is laid on the fact that the contacts 34 and 31 are normally in engagement, because not only will the lantern operate effectively in cold weather, but when the battery becomes weak the bulb 13 will light even though the current will be insufficient to heat the thermostatic arm. If the bulb 13 should burn steadily, this would indicate that a new battery should be installed in the lantern. Hence in my flasher heat is employed to break contacts and spring tension and the blade is employed to hold contacts in engagement.

The period of time of the flashing of the bulb 13 can be controlled by the length of the blade, the resiliency of the blade and the length or number of turns of the Nichrome wire around the blade.

From the foregoing description it can be seen that I have provided an exceptionally simple, durable and compact form of flasher or winker which can be connected or easily installed in a conventional portable electric low voltage light. The top and bottom contact plates of the flasher are utilized as seals for the opening in the body plate and these plates completely enclose and house all working parts of the flasher and thus such working parts are protected from dirt, dust, grease and the like. Due to the simplicity of the flasher and the fact that the same is made from materials that are not easily broken the flasher itself will stand an unusual amount of rough handling without breakage.

Some of the important features of my invention are that the top and bottom plates 27 and 28 are insulated from one another and do not contact at any point or place except through the silver contact points 31 and 34. Hence, the current goes direct from the bottom plate through the fine Nichrome wire 35 to the contact points. Thus I am enabled to control the true amount of current desired for best results. As the contacts are normally in engagement, the necessity of having an adjustable gap between the points is eliminated. By controlling the flow of current, I am enabled to get immediate lighting of

the bulb, longer life to the battery and the light will continue to burn even when the strength of the battery is insufficient to heat the thermostatic arm. The circuit through my flasher or winker remains the same irrespective of what type of hand lantern the same is issued with, and I need no additional ground wires or the like. Thus the installation of my device is easy and the device itself is of a simple construction. The winding of the wire about the thermostatic blade can start either from the contact point or from the hilt or outer end of the blade and hence the winding of the wire about the blade is a simple step. Attention is again called to the fact that the thermostatic blade is entirely insulated from both the top and bottom plates and its only electrical connection is with the top plate through the silver points.

Changes in details may be made without departing from the spirit or scope of my invention, but what I claim as new is:

A flasher or winker attachment for low voltage electric hand lamps comprising a thin body



plate of insulation having an opening therethrough, thin contact plates secured to the opposite sides of said body plate and closing said opening, said conducting plates being insulated one from the other by the body plate, a thermostatic blade disposed in the opening, means firmly anchoring the outer end of the blade in the body plate, said blade being insulated from the contact plates, a contact point carried by one of the conducting plates for engaging the central contact of the bulb of the hand lamp, and a fine Nichrome wire coiled about the blade having one end electrically connected with the conducting plate opposite to the conducting plate having the contact point, and a contact point on the inner end of said blade electrically connected with the wire and normally engaging the first mentioned contact point and a resilient attaching clamp carried by one of said conducting plates for receiving the contact of the hand lamp which normally engages the central contact of the bulb.

CHAUNCEY H. McCLURE.