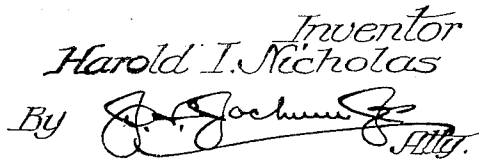


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FLASHLIGHT

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This invention relates, in general, to flashlights, but more specifically to a holder for a flashlight bulb, which latter is generally employed for producing a flash of light for photographic purposes.

Heretofore, bulbs or lights of this character have generally been secured in a holder either by means of a bayonet joint, or by means of screw threads, and when it is desired to remove the bulb it must be manipulated to uncouple or unscrew the same.

It is well known that after a flash, the bulb is very hot and difficult to handle with comfort, with the result that, frequently, the operator's hand is burned. Further, the heat at times is so intense that parts swell and the joint becomes "frozen," rendering it difficult to remove the bulb until it cools off. This is not only very annoying, but also time-consuming.

It is one of the objects of the present invention to provide an improved holder for a lamp or bulb of this character, wherein there is provided means for automatically releasing and ejecting the bulb from the holder, at the will of the operator.

A further object is to provide in a device of this character, improved means embodying a control lever or element by means of which a flash may first be produced and, subsequently thereto, the bulb may be released and ejected from the holder, thereby obviating the necessity of the operator's hand contacting the bulb.

A further object is to provide in a device of this character, an improved control device operable in two separate and successive steps of movement, in the same direction, first to cause a flash and then an ejection of the bulb from the holder.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts, hereinafter more fully described and claimed and shown in the accompanying drawing illustrating this invention, and in which

Fig. 1 is a view, in elevation, of a flashlight of this character, constructed in accordance with the principles of this invention.

Fig. 2 is a left-hand end elevation of Fig. 1, with the parts broken away.

Fig. 3 is a view, in elevation, of a lamp bulb adapted for use with this invention.

Fig. 4 is a longitudinal sectional view of a lamp holder or handle, showing a portion of the

lamp being ejected therefrom, the lamp being shown in dotted lines.

Fig. 5 is a detail sectional view, on an enlarged scale, taken on line 5—5, Fig. 1.

Fig. 6 is a detail sectional view, on an enlarged scale, taken on line 6—6, Fig. 1.

Fig. 7 is an enlarged detail sectional view of the circuit make and break mechanism.

The holder consists, essentially, of a casing 10 which may be of any desired size and configuration, and constructed of any suitable material. The holder is hollow, and is provided with a closure 11 for one end thereof, which latter may be secured in position in any suitable manner such as by means of a bayonet joint 12.

Within the holder and spaced from one end thereof is a partition 13, formed in any suitable manner, but preferably of insulating material. An opening 15 extends through the partition 13, and this opening is enlarged, as at 16, to form a shoulder 17.

A plunger 18 passes through the opening 15, and is provided with a head on one end, against which a spring 19 rests. The spring is preferably a coil spring which encompasses the plunger, and the other end thereof rests against the shoulder 17.

The normal tendency of the spring 19 is to force the plunger 18 downwardly against the contact end 20 of a battery 21 arranged within the handle or holder. There are preferably a plurality of batteries 21 superposed so as to increase the strength of the current.

The plunger 18 may be held against displacement with respect to the partition 13 in any suitable manner such as by means of a pin 22 passing therethrough.

Arranged, also, within the holder 10 is another partition 23, preferably constructed of insulating material, and which is held in position in any suitable manner. This partition 23 preferably abuts the partition 13, and passing through the partition 23 is an opening 24. The opening 24 at one end of the partition 23 is enlarged, as at 25, to form a chamber, and is enlarged at the other end, as at 26, to form another chamber opening through the opposite end thereof.

A plunger 27 passes through the opening 24, and is provided with a head 28 disposed within the chamber 26. On the opposite end of the plunger is another head 29 which is disposed within the chamber 25.

A coil spring 30 is also disposed within the chamber 25 and surrounds the plunger 24, one end of the spring resting against the bottom of

the chamber 25, while the other end of the spring rests against a shoulder 31 on the plunger. The normal tendency of the spring 30 is to force the plunger 24 away from the partition 13, so that the end of the plunger will project into a socket 32 in the end of the holder.

The socket 32 is provided with slots 33 in the wall thereof, and the partition 23 is provided with an opening 34 extending transversely thereacross, to intersect the chamber 26. Within this opening 34 is arranged a plunger 35, which is preferably hollow and closed at one end, as at 36, insulating material 37 being preferably provided at the closed end.

The open end of the plunger 35 is preferably formed of insulating material, and this plunger is adapted to be moved transversely of the partition 23. Conducting material 38^a is carried by the plunger, and a coil spring 39 is disposed within the plunger 35, one end of the spring resting against the bottom of the opening in the plunger, while the other end of the spring rests against a suitable stop. The normal tendency of the spring 39 is to force the plunger 35 out of the opening 34 for a purpose to be described.

The numeral 40 designates a leaf spring member disposed adjacent the outside of the holder 10, and is secured to the holder, as at 41. This spring encompasses a portion of the holder adjacent one of the slots 33 to extend thereacross, and forms a closure therefor, and is provided with a shoulder 42 adapted to project into one of the slots.

Connected to the end of the spring 40, as at 43, is a lever 44 which is pivotally mounted intermediate its ends upon a fulcrum 45 secured to the holder. A second lever 46 is pivotally connected, as at 47, to the fulcrum 45, the pivot 47 preferably constituting the pivot for both of the levers 44 and 46.

The free end 48^a of the lever 46 is disposed adjacent the end of the plunger 35, and may preferably be provided with a bearing 49 which contacts the insulated portion of the plunger 35.

The normal tendency of the spring 39 in the plunger 35, tending to move the latter out of the recess or opening 34, will, by reason of being in contact with the lever 46, move the latter to the position shown in Fig. 1 of the drawing, so that the insulated portion 38 of the plunger 35 will stand between the plungers 24 and 15, to interrupt the electrical circuit from the batteries 21 to the lamp. This is occasioned by reason of the fact that the plungers 15 and 24 will contact with such insulated portion 38.

When, however, the lever 46 is moved to the position shown in Fig. 4 a sufficient distance, the plunger 35 will be moved inwardly, thereby causing the insulated portion 38 of the plunger 35 to move out of contact with the plungers 15 and 24, to permit the latter to contact the conducting portion 38^a of the plunger 35, and thereby complete the circuit through the lamp when the latter is in the holder.

The lamp 45 may be of any desired type and construction, but is preferably provided with a metal base 46 having an end terminal 47. Projecting from the base 46 are lugs or extensions 48. This lamp is adapted to be inserted into the socket 32 by causing the projections 48 to enter the slots 33.

As one of the projections 48 contacts with the shoulder 42, it will cause the spring 40 to yield so that the projection 48 may pass

thereunder, as shown in Figs. 1 and 2 of the drawing, to be locked into the socket 32.

As the lamp is placed within the socket, the end 47 contacts the end of the plunger 29, thereby compressing the spring 30 and forcing the plunger downwardly, and the spring 30 will be maintained under tension so long as the lamp is thus locked in the socket 32.

After the lever 46 has been moved to the position shown in Fig. 4 of the drawing, the circuit, as before stated, will be completed through the lamp to produce a flash. Thereafter, the lever 46 may be moved further in the same direction, causing the lever to engage the portion 49 of the lever 44, to rock the latter about the pivot 47. When the lever 44 is thus rocked, the end of the spring 40 will be moved away from the holder 10, and the shoulder 42 of the spring 40 will be moved out of the slot 33 a sufficient distance to permit the lamp or bulb 45, under the influence of the spring 30, to be ejected from the socket 32.

As soon as pressure is relieved upon the lever 46, the spring 39, in connection with the spring 40, will tend to cause the levers to move back to their normal positions, and the plunger 35 to a position that the insulated portion 38 thereof will be engaged by the ends of the plungers 24 and 15.

The lamp may be placed into the socket without the operator actuating either of the levers 46 or 44, as all that is necessary is to place the lamp in the socket, with the projections 48 in alinement with the slots 33, and then depress the same against the stress of the spring 30 and the spring 40, which will cause the spring 40 to yield to permit the projection 48 to pass the shoulder 42. Subsequently thereto, the spring 40 will assume a normal position to lock the lamp within the socket.

While the preferred form of the invention has been herein shown and described, it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:

1. A device of the character described, including a lamp socket, means for retaining a lamp against removal from the socket, a circuit controlling means, means responsive to the operation of the said circuit controlling means for rendering said retaining means inactive, and means for ejecting the lamp with respect to said socket when the said retaining means is rendered inactive,

2. A device of the character described, including a lamp receiving socket, means tending normally to eject the lamp from said socket, retaining means for maintaining the lamp in the socket against the stress of the said ejecting means, circuit controlling means, and means operable after a predetermined degree of movement of said circuit controlling means for rendering said retaining means ineffective, to render said ejecting means effective.

3. A device of the character described, including a lamp receiving socket, means tending normally to eject the lamp from said socket, locking means for retaining the lamp in the socket against the stress of the said ejecting means, circuit controlling means, and means operable after a predetermined degree of movement of said circuit controlling means for rendering said locking

means ineffective, to render said ejecting means effective, the said circuit controlling means embodying a shiftable element, a portion of which serves to complete the circuit and another portion serves to interrupt the circuit.

4. In a device of the character described, a lamp receiving socket, means tending normally to eject the lamp from the socket, means embodying a shiftable element for maintaining the lamp in the socket and against the stress of said ejecting means, an actuator for rendering said element ineffective, to permit the lamp to be ejected from the socket, and a shiftable circuit controlling element, the said actuator being responsive in its movement to, and after a predetermined degree of movement of, the said circuit controlling element.

5. In a device of the character described, a lamp receiving socket, means tending normally to eject the lamp from the socket, means embodying a shiftable locking element for maintaining the lamp in the socket and against the stress of said ejecting means, an actuator element for rendering said locking means ineffective, to permit the lamp to be ejected from the socket, and a shiftable circuit controlling element, the said

actuator element being responsive in its movement to, and after a predetermined degree of movement of, the said circuit controlling element, the said actuator element and the said circuit controlling element embodying a compound lever, one section of which is operable subsequent to the operation of the other section.

6. In a device of the character described, a lamp receiving socket having a recess in its wall opening through one end of the socket, in combination with a lamp bulb provided with a lateral projection adapted to enter the recess when the lamp is seated in the socket, a locking element serving to close the recess and beneath which element said projection extends to lock the lamp against removal from the socket, a resiliently influenced plunger to be engaged and depressed by the lamp, said plunger tending normally to eject the lamp from the socket, a shiftable element for controlling the lamp circuit, and means whereby after a predetermined movement of said circuit controlling element, the said locking element will be shifted to release the lamp to permit the lamp to be ejected from the socket by the said plunger.

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