July 26, 1949. P. C. HAAS 2,477,516

FLASHLIGHT SWITCH

Filed May 18, 1945

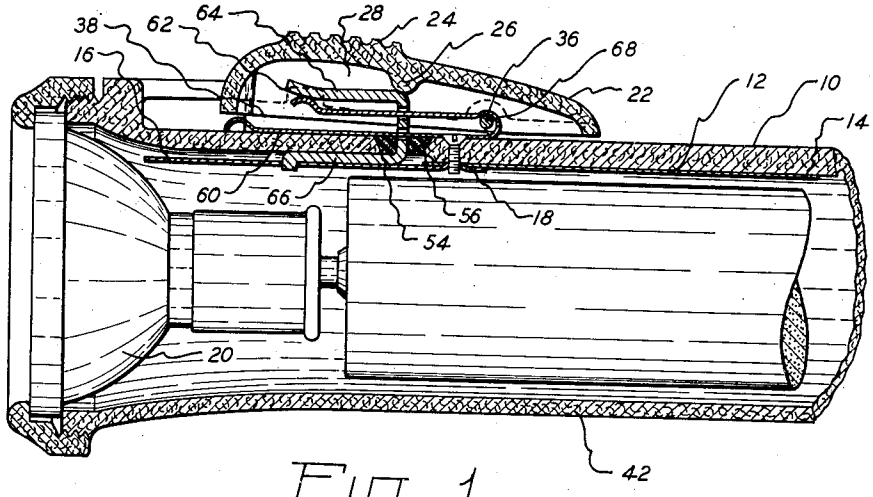


Fig. 1.

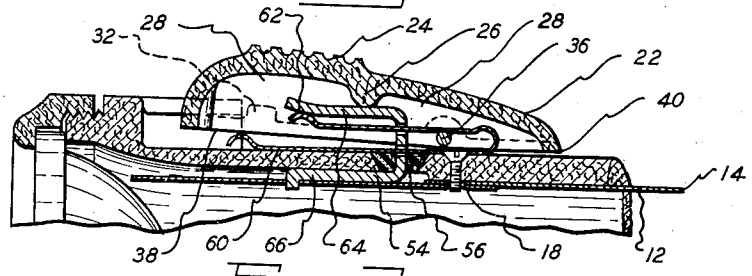


Fig. 2.

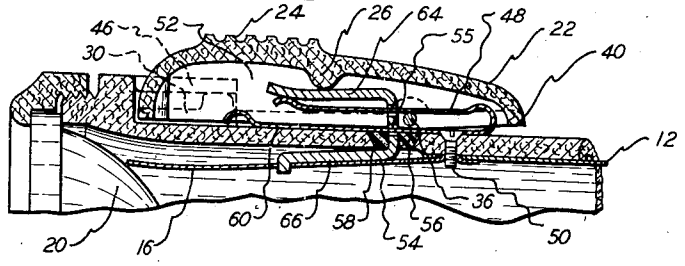


Fig. 3.

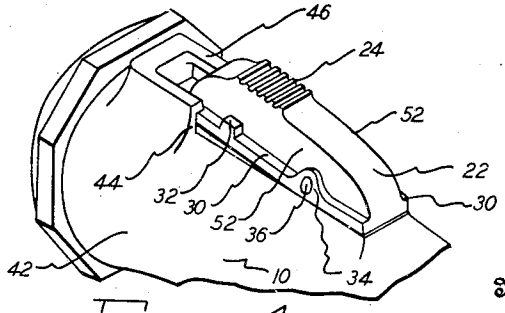


Fig. 4.

Inventor

PAUL C. HAAS

By Beaman & Langford

Attorneys

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FLASHLIGHT SWITCH

Paul C. Haas, Mendon, Mich.

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4 Claims. (Cl. 200—60)

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The present invention relates to improvements in electrical switch mechanism for flashlights, being particularly adapted to vapor and explosion proof types of construction.

It is of great importance that emergency and industrial flashlights be vapor proof and in operating condition at all times. For the reason that industrial flashlights are customarily kept in tool boxes and roughly handled, electrical switches of standard construction are often inadvertently closed when not in use, discharging the batteries. Usually the fact only becomes known when an emergency arises.

Thus one of the objects of this invention is to provide an improved vapor sealed switch of the character described.

Another object is to provide a flashlight switch having a "non-flashing" off position.

Another object is to provide a flashlight switch in which a single member is utilized for both "flash" and "continuous on."

These and other objects and advantages to be found in the specific arrangement and construction will appear hereinafter.

In the drawing,

Fig. 1 is a fragmentary vertical cross section of a flashlight embodying the present invention with the switch in the "off" position.

Fig. 2 is a view similar to Fig. 1, with the switch in the "flash" position.

Fig. 3 is a view similar to Fig. 1 with the switch in the "continuous on" position, and

Fig. 4 is a perspective view of the flashlight with the switch shown in the "off" position.

Referring to the drawing, the flashlight 10 is preferably of vapor and explosion proof construction. An electrical contact 12 comprises a portion 14 extending to the rear end of the light for connection with the end of the last battery, and a forward end 16 fixed at 18 and adapted to be depressed into contact with the reflector 20 to close the circuit. This is all standard construction.

The switch mechanism for depressing the end 16 of the contact 12 comprises an actuator 22 having a rough surface 24 to receive the thumb for depressing and sliding the actuator 22. Preferably the actuator is of molded, thin wall construction to provide a projection 26 on the interior of the chamber 28, side rails 30 having projections 32, and bosses 34 to carry the pivot pin 36. The bottom edge 38 of the actuator 22 is located in one plane forward of the bosses 34, with the rear bottom edge portion 40 located in a plane slightly angular thereto. This arrangement permits limited pivotal movement of the actuator 22 about the pin 36.

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Shown integral with the outer casing 42 is a guide channel 44 having flanges 46 which project over the rails 30 and projections 32. This construction guides and locates the forward end of the actuator 22. For guiding and locating the rearward end of the actuator 22, a return bent spring 48 is provided which is secured to the casing 42 through a screw 50. The spring 48 is straddled by the sides 52 of the actuator 22 with a free sliding fit permitting relative axial movement while restraining the rearward end against lateral movement.

The movement of the actuator 22 to depress the end 16 of the contact 18 is transmitted through a U-shaped lever 54 fulcrumed at 55 in a resilient seal 56 located in a conical opening 58 and held in position by the lower portion 60 of the spring 48. The upper portion 62 of the spring 48 stresses the lever 54 into the position shown in Fig. 1 through engagement with the underside of the upper leg 64. As more clearly shown in Fig. 3, the lower leg 66 rests on the end 16 to depress the same when the lever 54 is rocked.

In the "off" position, shown in Fig. 1, the actuator 22 is to the extreme right with the pin 36 located in a recessed portion 68 of the spring 48. In this position the projection 26 is directly over the fulcrum 55 of the lever 54 and normal downward pressure on the portion 24 of the actuator is resisted. In Fig. 2, the actuator 22 has been moved to the left into the "flash" position. Projection 26 is now to the left of the fulcrum 55 and pressure on the portion 24 will rock the actuator 22 around the pin 36 as an axis, depressing the end 16 into contact with the reflector 20 to close the electrical circuit. Further movement of the actuator 22 brings the same into the "continuous on" position, shown in Fig. 3, with the projections 32 located beneath the flanges 46 to hold the actuator 22 depressed.

It should be apparent that with the actuator 22 in the "off" position of Fig. 1, downward pressure will not rock the lever 54 and the electrical circuit remains open. Thus there is little likelihood of the batteries being inadvertently discharged. At the same time this safeguard has been accomplished without sacrifice of "flash" and "continuous on" positions, all combined with a single actuator.

Having thus described my invention, what I desire to secure by Letters Patent and claim is:

1. A flashlight construction having an exterior casing, an actuator mounted on the outer side

of said casing and supported for relative axial movement, a deflectable contact located on the inner side of said casing and having one end fixed thereto, a relatively rigid connector extending between said actuator and contact through said casing, a resilient bushing sealing said connector in said casing and serving as a fulcrum therefor, and a cam connection between said actuator and said connector operative upon relative axial movement of said actuator to rock said connector around said fulcrum to deflect said contact.

2. A flashlight construction having a casing, an opening through said casing, a resilient bushing sealing said opening, a U-shaped lever extending through said bushing and fulcrumed therein, an actuator on the outside of said casing supported for movement along a leg of said lever, an electrical contact on the inside of said casing, and operative connections between said contact and actuator through the other leg of said lever.

3. A sealed flashlight switch construction comprising a casing, an opening through said casing, an actuator on the outside of said casing and movable relative to said opening, a contact operator extending through said opening, means sealing said opening and supporting said operator for rocking movement about a fulcrum adjacent said opening, said operator having a portion extending along the outside of said casing with which said actuator engages along its length at varying distances from said fulcrum.

4. A flashlight switch construction comprising

a casing having an opening therein, a resilient bushing sealing said opening, a U-shaped lever passing through said bushing and having its fulcrum therein, an actuator for said lever means supporting said actuator for relative axial movement on the outside of said casing, said actuator being movable along the outside of said casing from "off" position to "flash" and "continuous on" positions, means on said actuator for engaging and rocking said lever upon relative axial movement along said casing, said last means being constructed and arranged to engage said lever to one side of said fulcrum with said actuator in the "flash" and "continuous on" positions, in the "off" position said last means being located in an inoperative position relative to said lever and its fulcrum.

PAUL C. HAAS.

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