Feb. 17, 1931. D. B. HAINES 1,792,902

PORTABLE ELECTRIC FLASHLIGHT

Filed Feb. 9, 1929

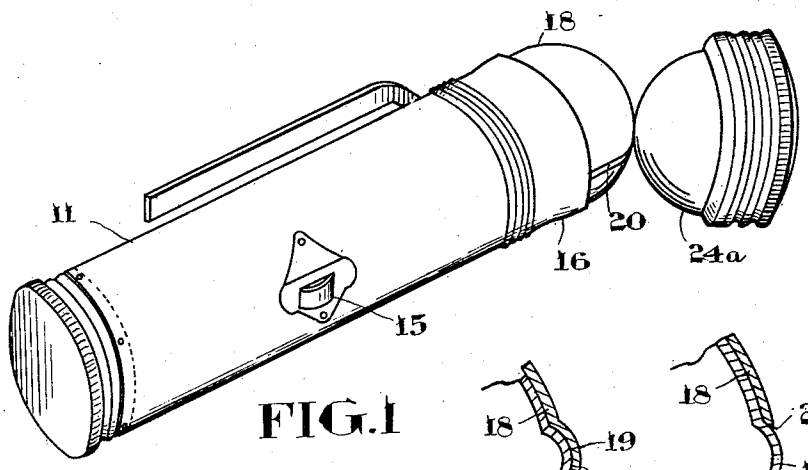


FIG. 1

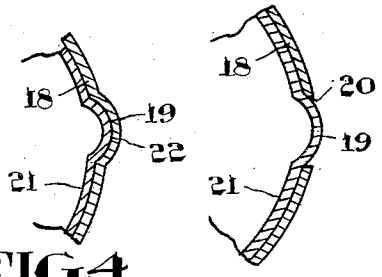


FIG. 4

FIG. 5

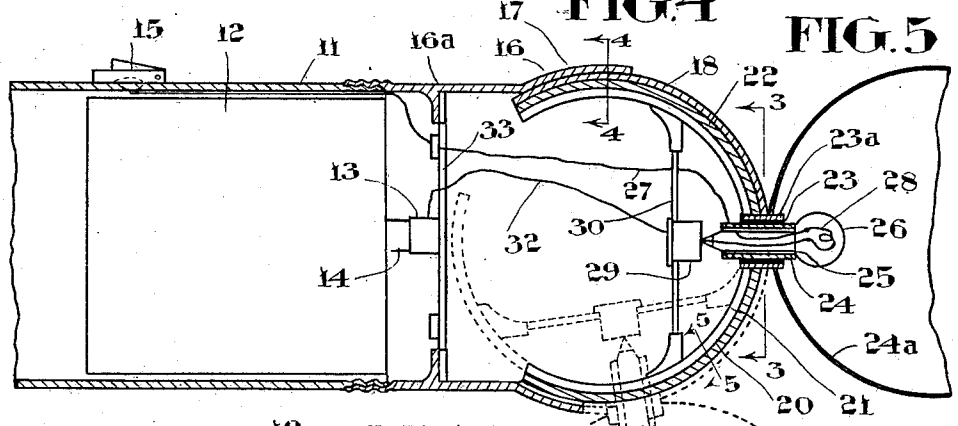


FIG. 2

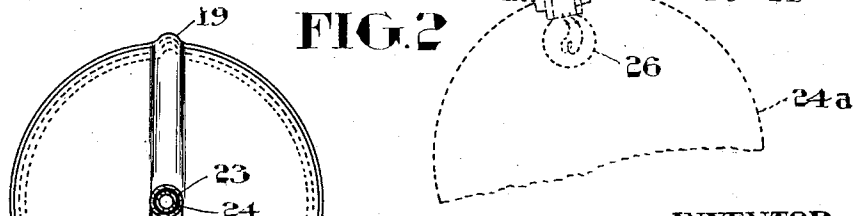


FIG. 3

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UNITED STATES PATENT OFFICE

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PORTABLE ELECTRIC FLASH LIGHT

Application filed February 9, 1929. Serial No. 338,761.

This invention relates to new and useful improvements in flashlight and the object of the invention is to provide a flashlight having a movable reflector support and lamp carrier which will be easily adjusted to throw or project the light at a variety of angles with respect to the longitudinal axis of the holder.

Another object is to provide a flashlight having an adjustable lamp holder and cartridge or battery holder so connected that there is no relative vibration between them.

According to my invention, I provide a battery holder having a substantially semi-spherical head which is slotted and adapted to embrace and hold in position a similarly shaped lamp and reflector holder. Guides are formed in the cap and the lamp holder to limit the movement of the lamp and its reflector and also to reduce relative vibration between the lamp holder and the battery holder or magazine.

In the drawings which illustrate my invention:

Figure 1 is a perspective view of my improved flashlight.

Figure 2 is a part sectional view of the flashlight showing my improved cap and lamp holder in assembled relation.

Figure 3 is an end view taken on the line 3—3 Figure 2.

Figure 4 is a part sectional view taken on the line 4—4 Figure 2.

Figure 5 is a part sectional view taken on the line 5—5 Figure 2.

Referring more particularly to the drawings, 11 designates the cylindrical holder which is adapted to receive the batteries 12 one of which is shown in Figure 2. The batteries are held against each other with the uppermost battery making contact with the terminal 13 through the action of the cap 14. The usual sliding switch 15 is employed. The above mentioned features are common to practically all types of flashlights. My improvement lies in the lamp holder and the means for attaching it to the battery holder so that it can be adjusted to project the rays of the lamp in the desired direction.

The end 16 of the battery holder is provided with a detachable nipple 16*a* which flares outwardly to form a socket 17 which engages with the substantially semi-spherical bearing member or head 18. The end or socket is soldered or otherwise secured to the member 18. An internal groove 19 is formed on one side of the member 18 and a slot 20 formed on the other side. Rotatably mounted within the member 18 is a similarly shaped member 21 having an external ridge 22 which fits into the internal groove 19 and in the slot 20. Secured to the periphery of the semi-spherical member 21 is the metallic bushing 23*a* internally threaded to receive the insulating bush 23 within which is mounted the internally threaded metallic adapter 24 adapted to engage with the neck 25 of the lamp 26. The metallic adapter is electrically connected to the bar 33 by means of the wire 27 and said bar forms a contact with the switch by any suitable means. The lamp terminal 28 contacts with an electrical conductor 29 mounted on a bar 30 extending diametrically within the member 21. The conductor 29 is connected to a terminal 13 by means of the wire 32. The terminal 13 is secured to a bar 33 extending diametrically across the interior of the end 16 of the battery holder. A reflector 24*a* is held in place by the bushing 23*a*. The reflector is adapted to project the light from the lamp in the desired direction.

In operation, the substantially semi-spherical lamp holder and head form a ball and socket connection which prevents relative vibration between the members and also provides a good wearing surface. The slot is so constructed that the relative movement between the head and the lamp holder is substantially 90° and in the direction of the slot, as shown in dotted lines in Figure 2.

The guiding groove and ridges limit the movement of the lamp. Flexible connections between the switch and the lamp and also between the lamp and the battery terminal allow free movement of the moving parts of the flashlight. By providing a direct electrical connection between the lamp bushing and the switch instead of using the casing as the connection, allows the lamp to be placed anywhere without completing the lamp circuit as is the case in many of the flash-lights now manufactured.

The device is robust and simple in construction and can be used to direct the light to any desired angle.

What I claim is:

1. In a flashlight, a battery casing, a substantially semi-spherical head secured to one end thereof, a semi-spherical lamp holder fitted into and movable within the head, coacting projections and grooves formed respectively in the holder and head to form a guide for the relative movement thereof, and a lamp secured to the holder and projecting through a slot in the head, said slot being adapted to limit the movement of the head, said lamp being insulated from the holder.

2. In a flashlight, a battery casing, batteries therein, a switch in the casing, a substantially semi-cylindrical head secured thereto, said head having a groove and a slot formed therein, a lamp holder of semi-spherical shape fitting into the holder and movable therein, said holder having a ridge which fits into the groove and the slot, a lamp secured to and insulated from the holder and projecting through the slot in the head, said slot being adapted to limit the movement of the lamp and flexible electrical connections between the battery and the lamp and between the lamp and the switch.

3. In a flashlight, a battery casing, batteries therein, a switch in said casing, a substantially semi-spherical head secured to one end of the casing, said head having a guide formed therein, a lamp holder of semi-spherical shape fitting into and movable within the head, said holder having a ridge fitting into said guide, a lamp secured to and insulated from the holder and passing through a slot in the head, a reflector for said lamp, flexible electrical connections to the battery and the switch from the lamp and means for insulating the head.

4. In a flashlight, a battery casing, a substantially semi-spherical head secured thereto, a semi-spherical lamp holder fitting into the head and adjustable therein, a semi-circular lamp reflector, an adapter joining the lamp holder and reflector, and a lamp member mounted within said adapter.

5. A device according to claim 4 wherein a bar member is mounted diametrically of the lamp holder, and means connecting said lamp and bar for a purpose specified.

6. In a flashlight, a battery casing, a substantially semi-spherical head secured thereto, a semi-spherical lamp holder oscillatedly mounted within said head, a reflector and a metallic bushing joining said reflector and lamp holder, and a lamp member carried in said bushing.

In witness whereof, I have hereunto set my hand.

DANIEL B. HAINES.