Sept. 2, 1941. J. TULLER 2,254,715

LIGHT WITH ADJUSTABLE HEAD

Filed Oct. 20, 1939

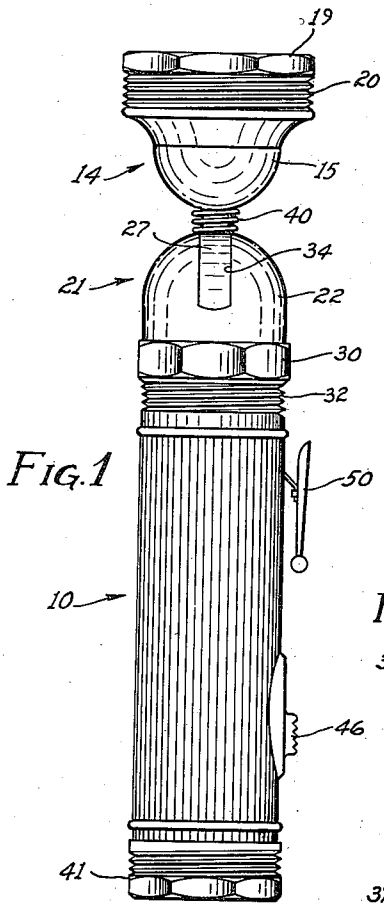


FIG. 1

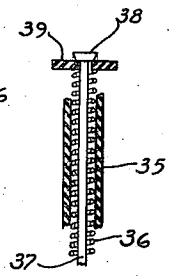


FIG. 5

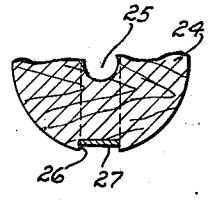


FIG. 4

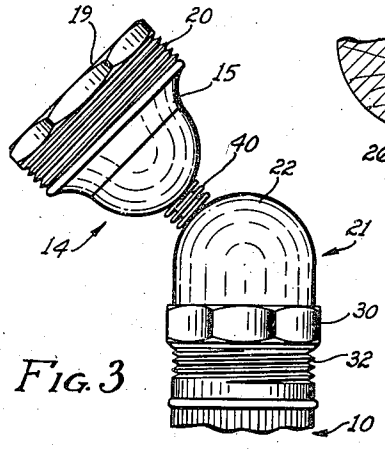


FIG. 3

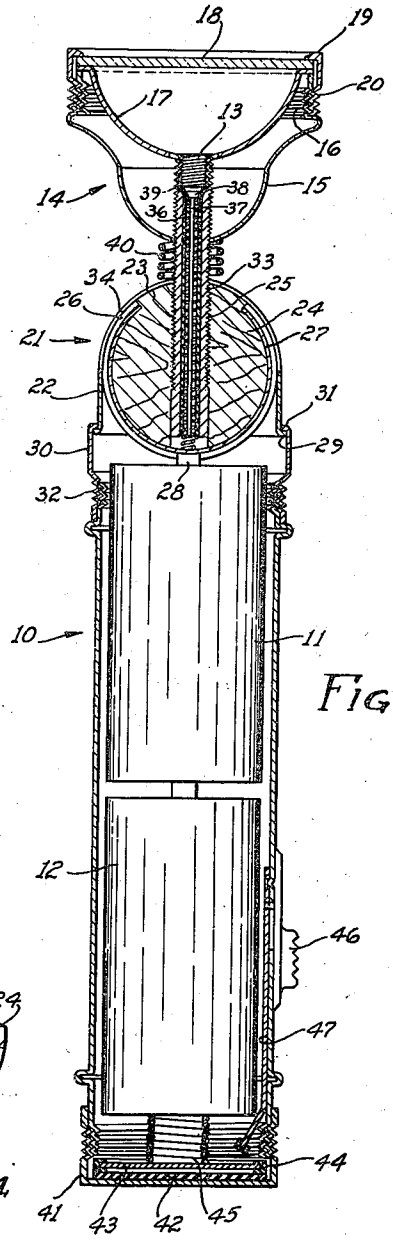


FIG. 2

INVENTOR
JOHN TULLER
BY John J. Hanrahan
ATTORNEY

Patented Sept. 2, 1941 2,254,715

UNITED STATES PATENT OFFICE

2,254,715

LIGHT WITH ADJUSTABLE HEAD

John Tuller, Bridgeport, Conn.

Application October 20, 1939, Serial No. 300,443

4 Claims. (Cl. 240—10.67

This invention relates to new and useful improvements in lights and has particular relation to a portable type of light having an adjustable head.

The objects and advantages of the invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawing wherein a satisfactory embodiment of the invention is shown. However, it is to be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawing—

Fig. 1 is a side elevational view of a flashlight made in accordance with the invention;

Fig. 2 is an enlarged vertical central sectional view of the flashlight, the view being taken at right angles to Fig. 1;

Fig. 3 is an elevational view at right angles to Fig. 1 and showing the flashlight head tilted or adjusted relative to the body thereof;

Fig. 4 is a detailed sectional view showing the mounting of a contact strip employed; and

Fig. 5 is a detailed view on an enlarged scale showing a conductor means employed.

Referring in detail to the drawing, wherein the invention is shown as incorporated in a flashlight, at 10 is generally indicated the casing or body of the flashlight. Casing 10 contains the batteries 11 and 12 adapted at desired times to energize a lamp bulb (not shown) in a lamp socket 13. This socket 13 is located in a head generally designated 14 and including an outer housing 15 open at its upper end and about such end including a threaded portion 16. Associated with the socket 13 is a light reflector 17 against the outer open edge of which is disposed a lens 18 clamped in place by a ring-like member 19 the depending flange portion 20 of which has threaded engagement with the threads of the housing portion 16.

Interposed between the casing 10 and the head 14 is a connecting means generally designated 21. Such means includes an outer shell 22 open at its inner end and having its outer portion 23 arcuate or curved to conform to the curvature of a means or ball 24 located within the shell and of any desired or suitable insulating material. Ball 24 has an opening 25 through it and is also provided with an arcuate recess 26 within which is secured (in any desired manner) a conductor strip 27 of brass or the like. As shown most clearly in Fig. 4 the contact strip 27 is located below the surface of the ball 24 but is exposed through the open side of the recess 26 for engagement by the center contact 28 of the battery 11 (see Fig. 2) as will later be more fully considered.

About the inner end of the shell 22 is an outwardly directed flange 29 which may be provided by turning the extreme edge of the shell as shown. A coupling ring 30 about its outer end is provided with a flange 31 which overlies the flange 29. The inner portion of the ring 30 is threaded as at 32 and this threaded portion is screwed onto the outer end of the casing 10 as shown best in Fig. 2. Since the ball 24 is located within the shell 22 it will be understood that on tightening of the ring 30 the contact strip 27 carried by the ball 24 is drawn into engagement with the center contact 28 of the battery 11 but such engagement is never such as to prevent movement of the ball relative to such contact.

Fixed to the housing 15 is an externally threaded tube 33 projecting through the inner end of the housing and threaded into the opening 25 in the ball 24. Thus tube passes through a slot 34 in the outer curved end portion 23 of the shell 22 and being threaded into the ball serves to secure the head 14 to the ball and thus to the casing 10. Lining the tube 33 is a tube 35 of insulating material. Within tube 35 is a conductor comprising a light coil spring 36 and a pin 37, the latter being provided with a contact 38 for a purpose to be described. Immediately under the contact 38 is a disc 39 of insulating material.

When the conductor comprising the spring and pin is inserted into the tube 33 the disc 39 is drawn into a cone shape as in Fig. 2 and serves to insulate the contact 38 from the tube. The lower end of the spring 36 bears against the inner surface of the contact strip 27 and the spring engages the pin 37 whereby energy from the batteries may be supplied to the contact 38. Obviously when a lamp bulb is threaded into the socket 13 the center contact of such bulb will engage the contact 38.

A coil spring 40 about the tube 33 between the head 14 and the shell 22 serves as a conductor between such parts and to prevent casual relative movement of the parts and keeps the ball 24 in and against the upper arcuate part 23 of the shell. A cap or closure 41 is threaded onto the lower end of the casing 10 and within such cap and against the bottom wall thereof is a disc 42 of insulating material. Above disc 42 is located a metal conducting disc 43 having insulating material 44 about its edges whereby such metal disc

is fully insulated from all parts of the casing 10 and the cap 41.

Bearing against the disc 44 and the lower end of the casing of battery 12 is a coil spring 45. This spring maintains the batteries in positions such that the center contact 28 of battery 11 is at all times against the contact strip 27. In addition spring 45 is a conductor between the casing of battery 12 and the metal disc 44. Mounted on the side wall of the casing 10 is a switch button 46 connected to move a contact member 47. Obviously through the button 46 the strip 47 may be moved inwardly from the position of Fig. 2 into engagement with the disc 44 whereby to close a circuit through any lamp bulb in the socket 13.

In such event the circuit will be through the center battery contacts to the contact 38 of the pin 37, the center contact of the bulb to the side contact thereof, the socket 13, housing 15, spring 40, the casing 10 (by way of the shell 22), switch strip 47, disc 43, spring 45 and the casing of the battery. The mounting of the switch and other parts associated therewith in the manner shown and described permits of the employment of the connecting means 21 between the casing 10 and the head 14 whereby the head and casing may be adjusted relatively as will appear.

With such connecting means it will be apparent that the head 14 may be moved relative to the body within the limits of the slot 34. Since such slot extends for approximately one hundred and eighty degrees it will be clear that the head and casing may have considerable relative movement and that the head may be moved relative to the body as through the position of Fig. 3 to positions approximately at ninety degrees to the casing at either side thereof. As the head is so moved the tube 33 and ball 24 move with the head, the shell portion 23 conforming with the curvature of the ball. In addition the joint provided by the overlapping flanges 29 and 31 permits of the casing and head being moved or adjusted relatively through three hundred and sixty degrees about the longitudinal axis of the casing. In any position of adjustment of the casing and head the contact strip 27 is in engagement with the center contact 28 of the battery 11 so that the bulb may be energized irrespective of the relative positions of the head and casing.

Attached to the casing 10 is any suitable clip 50 by means of which the flashlight may be attached to a jacket or the like. When the light is attached to a jacket the head 14 may be adjusted relative to the casing 10 so that the beam of light from the device is thrown at any desired angle. With the device mounted on a jacket the hands of a user are both free as for writing as when an inspector is reading a utility meter in the basement of a building. In addition the device of the invention is very useful when working about an automobile or the like. The device may be disposed on a floor or other support with the head 14 adjusted to project the light beam at any desired angle.

Having thus set forth the nature of my invention, what I claim is:

1. In a flashlight, a casing for batteries, a head including a lamp socket and a light reflector, a shell having a rounded outer end, a flange about the inner end of said shell, a ring connecting the inner end of said shell with the casing and including a flange overlying the flange of the shell whereby the shell may be rotated relative to the casing, means within the shell and having a rounded surface bearing against the rounded surface of the shell, a slot in the rounded outer end of the shell, a contact strip on said means and bearing against the terminal of a battery in said casing, a tube connected with said head and said means and passing freely through said slot whereby the head may be adjusted relative to the shell and casing within the limits of said slot, a conductor passing through said tube and connected with said contact strip and a contact of said socket, and said ring threaded to said casing whereby on threading of the ring onto the casing said shell and means are drawn toward the casing to force and hold the contact strip against said battery terminal and at the same time increase the friction between the said flanges to prevent casual turning movement of the shell relative to the casing.

2. In a flashlight, a casing for batteries, a head including a lamp socket and a light reflector, a shell having a rounded outer end, a flange about the inner end of said shell, a ring contacting the inner end of said shell with the casing and including a flange overlying the flange of the shell whereby the shell may be rotated relative to the casing, means within the shell and having a rounded surface bearing against the rounded surface of the shell, a slot in the rounded outer end of the shell, a contact strip on said means and bearing against the terminal of a battery in said casing, a tube connected with said head and said means and passing freely through said slot whereby the head may be adjusted relative to the shell and casing within the limits of said slot, a conductor passing through said tube and connected with said contact strip and a contact of said socket, said conductor including a light coil spring insulated from the tube and bearing against said contact strip, a wire in and engaging said spring but of less length than the latter, and a head on said wire and comprising the center contact of said socket.

3. In a flashlight, a casing for batteries, a head including a lamp socket and a light reflector, a shell having a rounded outer end, a flange about the inner end of said shell, a ring contacting the inner end of said shell with the casing and including a flange overlying the flange of the shell whereby the shell may be rotated relative to the casing, means within the shell and having a rounded surface bearing against the rounded surface of the shell, a slot in the rounded outer end of the shell, a contact strip on said means and bearing against the terminal of a battery in said casing, a tube connected with said head and said means and passing freely through said slot whereby the head may be adjusted relative to the shell and casing within the limits of said slot, a conductor passing through said tube and connected with said contact strip and a contact of said socket, and a coil spring about said tube between and engaging the shell and head and comprising an electrical conductor between said parts and acting to maintain said means in engagement with the rounded inner surface of the shell and said head in adjusted relation to the shell.

4. In a flashlight, a battery casing containing a battery, a support on one end of said casing, a spherical-like body of insulating material, means supporting said body on said support for rocking movement relative thereto along a predetermined path through an arc of approximately 180 degrees, a light reflector, a lens over said reflector, a light bulb socket under said lens, a light bulb in said socket, means mounting said

reflector, lens and bulb socket on said body for movement therewith and to project light outwardly with respect to said body when the bulb is energized, a contact strip on the outer side of said body and having its intermediate portion located at the side of the body opposite that at which the reflector, lens and socket are located and extending in the plane of the path through which the body may be rocked whereby to be electrically connected with one contact of the battery in said casing in all positions of the body relative to the support, means constantly electrically connecting said strip with the center contact of said socket, said socket having its side contact electrically connected with the reflector, means electrically connecting said reflector with the support, and a switch on the casing and operable to close a circuit between the support and the other contact of the battery.

JOHN TULLER.