April 8, 1924. 1,489,431

C. A. DROUILLAT

FLASH LIGHT

Filed March 3, 1922

Fig. 1.

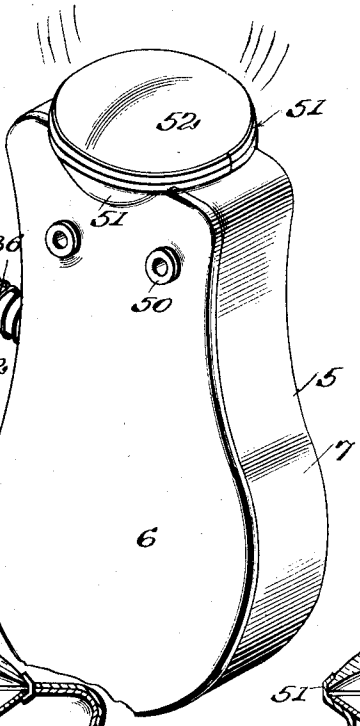


Fig. 4.

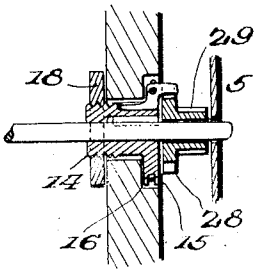


Fig. 5.

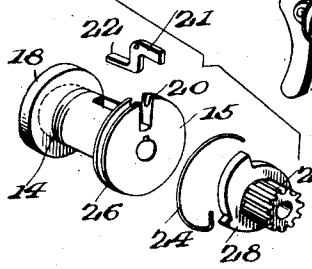


Fig. 2.

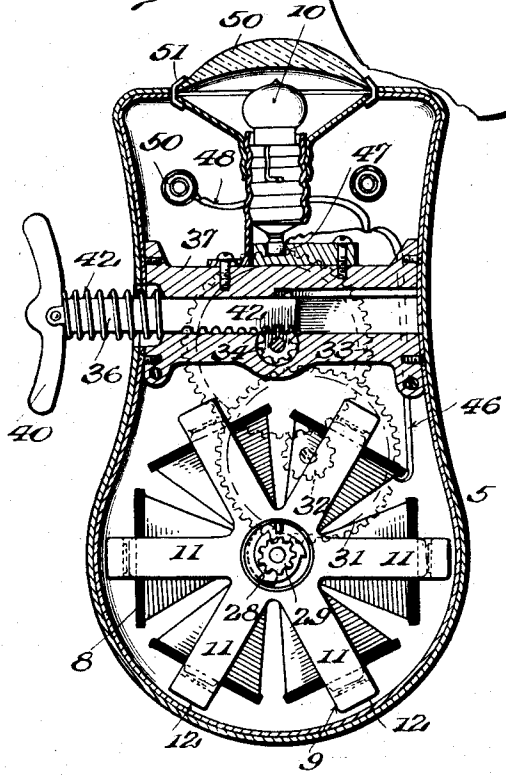
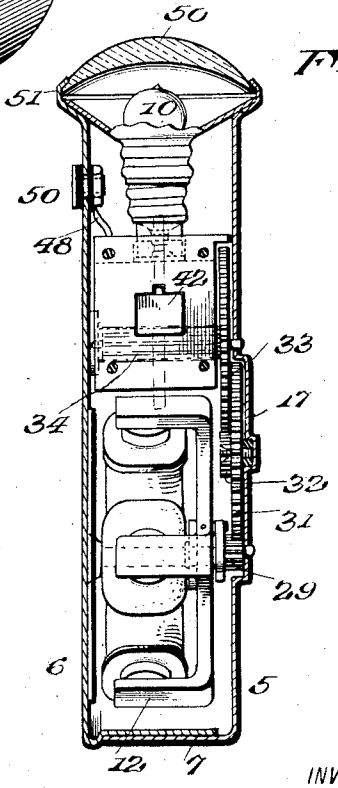


Fig. 3.



INVENTOR

Charles A. Drouillat

Patented Apr. 8, 1924. 1,489,431

UNITED STATES PATENT OFFICE.

CHARLES A. DROUILLAT, OF BROOKLYN, NEW YORK.

FLASH LIGHT.

Application filed March 3, 1922. Serial No. 540,720.

To all whom it may concern:

Be it known that I, CHARLES A. DROUILLAT, a subject of Belgium, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Flash Lights, of which the following is a specification.

This invention relates to flash lights of the hand operated type.

An important object is to provide a hand operated flashlight having novel means whereby an electric current may be created for the purpose of energizing a small electric bulb.

Further, the invention aims to provide a hand operated flashlight which may be efficiently operated with a minimum of effort on the part of the operator and which when in use will produce a practically continuous light.

Also, an object of the invention is to provide a hand operated flashlight having means whereby the same may be employed for testing outside lamps, bells and the like.

In carrying out the invention, the same is provided with means whereby the hand operated plunger or rack is caused to promptly return to its outermost position upon being released in such a manner that the rotatable magnet operated thereby is permitted to continue to rotate.

A further object is to provide a hand operated light wherein the wearing parts such as springs and brushes are reduced to a minimum.

A further aim is to provide a hand operated flashlight which is of highly simplified construction, durable in use and cheap to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawing forming a part of this application and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a perspective of the improved flashlight.

Figure 2 is a vertical sectional view through the same.

Figure 3 is a vertical transverse sectional view taken at right angles to Figure 2.

Figure 4 is a detail sectional view illustrating the means to permit the rack or plunger to return to its outermost position without causing the reversal of the rotatable magnet.

Figure 5 is a group view of the parts illustrated in Figure 4.

In the drawing wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral 5 generally designates a casing, which as illustrated in Figures 1 and 3, consists of a body 6 and a cover 7, the body and the cover being provided with overlapping sides which frictionally contact with each other and thereby hold the casing together.

As illustrated in Figures 2 and 3, one end of the casing is somewhat enlarged and is provided with a series of radially arranged stationary induction coils 8 about which the outer portion of a magnet 9 revolves whereby to set up an electric current which is utilized to energize the electric lamp 10.

The rotatable magnet consists of six radially arranged arms 11 having laterally directed terminal portions 12 which extend about the outer ends of the induction coils so that when the magnet is rapidly rotated the desired electric current will be created.

The hub of the magnet 9 is mounted upon a sleeve 14 which is exteriorly screw threaded and is provided at one end with an annular flange 15, the said flange being received within an annular recess 16 in the outer side of the magnet. The other end of the sleeve 14 is extended beyond the inner side of the magnet and has threaded engagement with a nut 18, the said nut forming a means for securely connecting the magnet to the sleeve.

As illustrated in Figure 5, the annular flange 15 is slotted radially as indicated at 20 and slidably receives a pawl 21 having its intermediate portion offset and arranged within the slot 20. The rear or inner portion of the pawl 21 is slightly reduced or tapered and is received within a longitudinal groove in the sleeve 14. The pawl 21 is urged to its operative position by means of a wire spring 24 which extends through the pawl and is seated in an annular groove 26 in the radial flange 15. It will be seen that the spring 24 yieldably holds the pawl 20 in engagement with the teeth of a ratchet wheel 28 formed at one end of a gear 29. When the gear is rotated in a clockwise direction the teeth of the same, or more particularly, one of the teeth engages the extended portion of the pawl 21 so as to rotate

the sleeve 14 and thereby drive the magnet 9. However, when the ratchet wheel 28 is rotated in the other direction, the pawl 21 will merely spring outwardly and the driving connection between the gear 29 and the magnet will be temporarily broken.

As illustrated in Figure 3, the gear 29 is engaged by a larger gear 31 carried by the section 7 and having connection with a small spur gear 32. The small gear 32 in turn meshes with a large gear 33 connected to one end of a rack operated gear 34.

A plunger 36 is slidable through the casing and an insulating block 37 and has one end formed with a rack 42 which meshes with the transversely extending gear 34. It will be seen that when the plunger 36 is depressed by the engagement of the fingers with the handle 40, the train of gears will be operated for rotating the magnet 9 in the proper direction whereby to set up the electric current. When the plunger is depressed it is promptly returned to its original position by means of a coil spring confined between the handle 40 and the insulating block 37.

With reference to Figure 2, it will be observed that a conductor wire 46 extends from the induction coil to a stationary contact 47 adapted to be engaged by the center contact of the electric bulb. In carrying out the invention, the conductor wire 46 is provided with a branch 48 which is connected to one of a pair of posts or contact members 50 carried by the section 6. The contact members 50 form a means whereby an electric bell system, an outside lamp or the like may be conveniently connected to the flashlight for testing purposes.

The overlapping flanges which join the sections 6 and 7 are provided at their forward ends with semicircular lens engaging members 51 which serve as a means for detachably holding the lens 52 in position. It will be seen that when the sections 6 and 7 are separated, the lens 52 is detached from the casing.

In operation, the improved flashlight is held in the hand and the handle 40 is depressed for operating the train of gears and the rotatable magnet and when the handle 40 is released, the magnet which also acts as a fly wheel continues to rotate for maintaining a light between the depressions of the plunger.

With reference to the foregoing description taken in connection with the accompanying drawing it will be seen that a flashlight constructed in accordance with this invention involves a comparatively few parts and further that wearing parts are reduced to a minimum.

Having thus described the invention, what I claim is:

1. A flashlight comprising a casing, a coil arranged therein, a magnet rotatable about the coil and having an annular recess, a sleeve extending through the magnet and having one end provided with an annular flange received in said annular recess, a nut threaded on said sleeve and engaged with the magnet, said annular flange being provided with a radial slot, a pawl movably received in said slot and having one end extended beyond the flange, a ratchet wheel associated with the extended portion of the pawl, a wire spring extending about the periphery of the flange and engaged with the pawls and means whereby to operate said ratchet wheel.

2. The construction set forth in claim 1, said means consisting of a train of gears and a hand-operated plunger to actuate the train of gears.

3. A flashlight consisting of a casing, a rotatable magnet arranged therein and having an annular recess, a sleeve extending through said magnet and having an annular flange received in said recess, said flange being provided with a radial recess, a pawl having its intermediate portion offset and received in said radial recess, said sleeve having a longitudinal groove receiving the rear portion of said pawl, the other end portion of said pawl being extended beyond the magnet, a wire spring extending about the periphery of said flange and engaging the offset portion of said pawl whereby to hold the pawl in position, a ratchet wheel engaged with said pawl, and means whereby to operate the ratchet wheel.

4. A flash light comprising a casing, consisting of a body, a cover provided therefor, said body and cover being provided with overlapping sides which frictionally hold the casing together, a series of radially arranged stationary induction coils arranged in said casing, a magnet revolving about said coils, radially arranged arms extending about the outer ends of the coils, a sleeve extending through the magnet and having one end provided with an annular flange having a radial slot, a pawl movably received in the slot and having one end extended beyond the flange, a ratchet wheel associated with a portion of the pawl, spring means arranged about the flange and means for operating the ratchet wheel.

In testimony whereof, I have affixed my signature in the presence of two witnesses.

CHARLES A. DROUILLAT.

Witnesses:

JULIUS P. SARGE.

MARIE HENUY.