(No Model.)

W. F. FOLMER.

POCKET LAMP.

No. 456,359. Patented July 21, 1891.

Fig. 1.

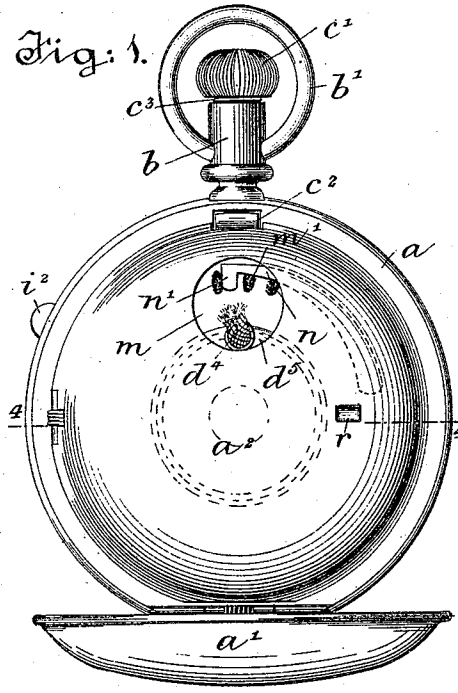


Fig. 2.

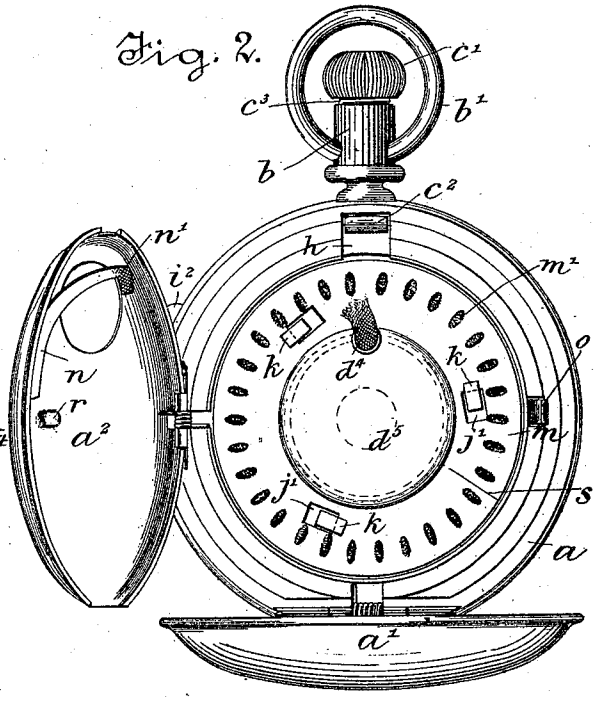


Fig. 5.

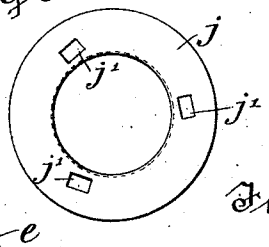


Fig. 3.

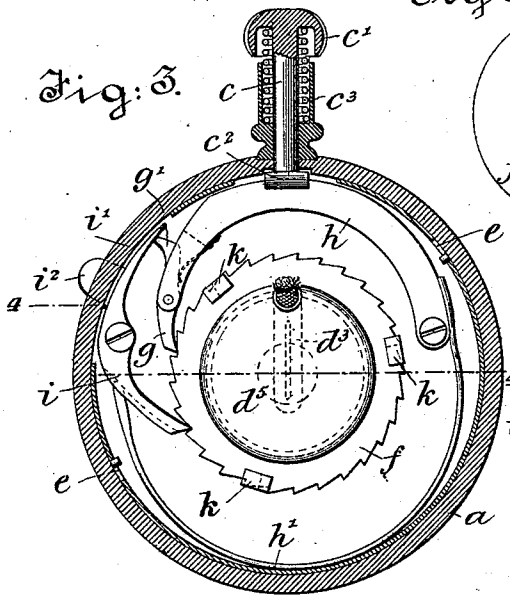
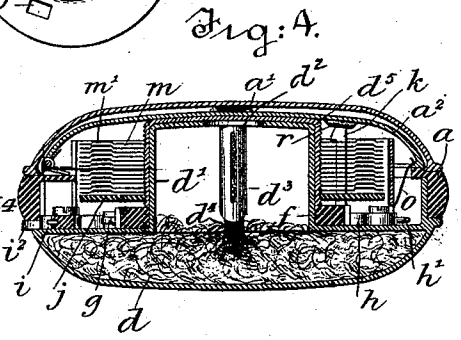


Fig. 4.



INVENTOR:

William F. Folmer

By Henry Connett

Attorney.

WITNESSES:

John A. Rennie.

Chas. A. Walch

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM F. FOLMER, OF INDEPENDENCE, KENTUCKY, ASSIGNOR TO THE FOLMER & SCHWING MANUFACTURING COMPANY, OF NEW JERSEY.

POCKET-LAMP.

SPECIFICATION forming part of Letters Patent No. 456,359, dated July 21, 1891.

Application filed January 26, 1891. Serial No. 379,005. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. FOLMER, a citizen of the United States, and a resident of Independence, in the county of Kenton and State of Kentucky, have invented certain Improvements in Pocket-Lamps, of which the following is a specification.

My invention relates to the class of lamps adapted to be carried in the pocket, and wherein the ignition is effected by bits or pellets of fulminate or igniting compound on a rotatable disk of stiff paper, each pellet being brought under a scratcher at every impulse given to the mechanism by the user. The casing contains a lamp, the wick of which is ignited by the fire from the fulminate or igniting composition. In carrying out my present invention I employ a casing preferably shaped like and resembling the case of a stem-winding watch. By pressing on the crown of the pendant the outer cap of the case flies open and the wick of the lamp is ignited, these two results being effected simultaneously, or substantially so. There is an inner cap, and this cap has an aperture exposing the ignited wick. The pellets of fulminate or igniting material are arranged in a circle on a washer-like ring of paper or the like, and a considerable number of these rings superposed are mounted on a rotating carrier, which is in the nature of a nut, and screws on the reduced neck of the lamp, which has a fine screw-thread cut on it. The rotation of the carrier and pellet-rings is effected by a ratchet through the medium of the stem in the pendant, and as the carrier rotates it rises by reason of the screw, whereby when the pellet-ring has completed its rotation and the pellets thereon are exhausted it may be stripped off, and the next pellet-ring will be raised high enough to bring the pellets thereon within reach of the scratcher, which latter is mounted on the inner cap. When the carrier shall have made one rotation, means are provided for automatically forcing the catch of this inner cap, when the said cap will be thrown open by a spring. This affords access to the interior for removing the exhausted pellet-ring.

The back of the casing which forms the body of the lamp is secured by a bayonet-lock or other similar catch to the ring of the casing, and may be readily removed for filling the lamp.

Means are provided for throwing the pawls out of gear, so that the carrier may be screwed down and a new set of pellet-rings placed thereon.

In the accompanying drawings, which serve to illustrate my invention, Figure 1 is a face view of a pocket-lighter embodying the invention. In this view the outer cap is represented as thrown open. Fig. 2 is a similar view representing both the inner and outer caps thrown open. Fig. 3 is a sectional view showing the interior mechanism, the pellet-rings and their carrier being removed. In this view the pendant and the ring of the casing are represented in section. Fig. 4 is a transverse section taken on line 4 4 in Figs. 1 and 3. Fig. 5 shows the carrier for the pellet-rings on a smaller scale detached.

a represents the ring of the casing, to which are hinged the outer cap a' and the inner cap a^2.

b is the stem of the pendant, and b' the ring thereof. The stem b is secured rigidly to the ring a.

d is the body or oil-reservoir of the lamp, and d' the cylindrical neck thereof. The body of the lamp is by preference convex at its bottom, and it fits snugly within the ring a, being secured detachably to the ring by bayonet-slots in a well-known way, or by some other known device of a similar character. These fastenings are shown at e in Fig. 3. In the neck d' is the filling-aperture d^2 and the wick-tube d^3. This latter is fixed to the side of the neck d', and may extend obliquely downward therein. It will be provided with a wick d^4, and the wick may be raised as required by inserting a pointed instrument at the filling-aperture, the tube being slotted, as seen in Fig. 4, to permit of this.

Over the neck d' of the lamp is placed a closely-fitting cover or cap d^5, which has in it an aperture through which the wick-tube projects. The cover is, practically speaking, a part of the neck of the lamp, and it is held down and in place by the inner cap a^2 of the case which fits snugly over it when closed. However, the cap d^5 may be secured against

lifting up by any known means, and the extension of the wick-tube through an aperture in it will stop it against rotation. The cap d^5 does not extend quite down to the plane top surface of the lamp-body d, and below it is arranged an annular ratchet f, which embraces the neck of the lamp and rests on the top of the lamp-body. The cover d^5 serves as a keeper to prevent the ratchet from lifting up. The ratchet f is engaged by a spring pawl g, pivotally mounted in the extremity of a spring pawl-carrier h. This carrier may have the form of a crescent, as seen in Fig. 3, with a curvature corresponding somewhat to the inner face of the ring a. It is mounted on the plane top of the lamp-body d.

In the hollow of the pendant-stem b is mounted a push-pin c, to which is secured a crown c'. On the end of this push-pin is secured a head c^2, which bears against the back or outer end of the pawl-carrier h. Now, when pressure is applied to the crown on the push-pin, the pawl g is made to rotate the annular ratchet f to the extent of one tooth, and when the pressure is removed a spring c^3 in the stem of the pendant retracts the push-pin. The spring h' retracts the pawl-carrier and pawl g. The ratchet f is held against back rotation by a spring-pawl i, the other extremity of the spring h' serving as the spring to keep pawl i in engagement. The pawl i has a tail i', and on this tail is a push-piece or thumb-piece i^2, which projects out through a slot in the ring a. The purpose of this is to enable the user to disengage the pawl i from the ratchet by pressing in the push-piece i^2, and in order that the same pressure may also disengage the pawl g the latter is provided with a tail g', on which the tail of the pawl i impinges when the push-piece is pressed upon. This construction will be understood by inspection of Fig. 3.

The cover d^5 of the neck of the lamp is screw-threaded externally, and on it is screwed in the manner of a nut an annular platform j to support the pellet-rings. This platform or carrier is seen detached in Fig. 5, where it is represented on a scale about two-thirds of that of the principal figures. This carrier j has in it apertures j', preferably three in number, through which pass upright drivers k, fixed at their lower extremities to the ratchet f. These uprights compel the carrier to rotate with the ratchet and to the same extent at each impulse. On the carrier j are placed the pellet-rings m. These are usually superposed, and as many are mounted on the carrier as will conveniently fill the space between the carrier and the hook-like heads of the drivers k when the carrier is screwed down as far as it will go. Each ring m has apertures corresponding to those in the carrier for the passage of the drivers k, and when the proper number of pellet-rings have been placed on the carrier the latter, bearing the rings, is rotated backward far enough to cause the overhanging heads of the drivers to take over the topmost pellet-ring and hold the rings down. On the pellet-ring m are the pellets m' of igniting or fulminating material. These will be by preference radially elongated, as shown in Fig. 2, and there will be one for each tooth of the ratchet f where the ratchet is arranged to advance one tooth at a time. The pellet-rings m will usually be of paper and they will have by preference slight embossments on their upper faces at the points where the igniting material is to be applied.

There are several reasons for elongating the pellets of fulminating material radially. It is desirable that these pellets shall not be too close together, or one will ignite those adjacent, and at the same time it is important that there shall be as many pellets as possible in the circle. Hence, as there must be a sufficient amount of the material to ignite the lamp, I obtain it by elongating the pellet in a radial direction. The pellet being narrow, proportionate to its elongation, its width will not be as great as the movement of the ring and consequently the scratcher will pass through and out of the fulminate at each movement.

The scratcher n for igniting the pellets will be mounted on the inner face of the inner cap a^2. It may be a leaf-spring with a tip n', cut like a file, as seen in Fig. 2.

In preparing the lamp or lighter for use the user fills the lamp with oil of the usual kind employed in such lamps, then throws open the two caps of the case, presses in the push-piece i^2 to disengage the pawls g and i, and then screws the carrier j down as far as it will go. He then places the pellet-rings upon the carrier, as above described, and closes the caps a' and a^2. When the inner cap a^2 is closed, as seen in Fig. 1, the lamp-wick will be exposed at an opening in said cap, and the operating tip n' of the scratcher will press upon the topmost pellet-ring adjacent to the wick. When the outer cap a' is closed, it is caught and held by a catch on the head c^2, precisely as the outer cap of a watch-case is held. The lamp is now ready for use. When the user desires to ignite the wick, he simply presses on the crown c' of the stem. The effect of this is to free the outer cap of the case, which flies open, and to rotate the pellet-ring to a sufficient extent to drive one of the pellets thereon under the scratcher. The pellet is ignited, and it in turn ignites the wick. The lamp-wick will be extinguished by merely closing the outer cap a' of the case. When the pellet-ring shall have made a complete rotation, it will be exhausted and must be removed. The screw on the neck of the lamp drives the carrier j upward as the latter rotates thereon, and the pitch of the screw will be such that when one pellet-ring has been exhausted and removed the next ring will be raised high enough for its pellets to come in contact with the scratcher. There will be some elastic compressibility in the pile of rings, and this enables me to use a continu-

ous upward feed of the rings, although these latter are only removed once at each complete rotation of the carrier *j*.

In order that the user may be advised when the topmost pellet-ring is exhausted, I prefer to provide the lamp with means whereby when the carrier *j* shall have completed a rotation the inner cap a^2 of the case flies open, as well as the outer cap, on the application of pressure to the crown *c'*. The cap a^2, which will be provided with a spring so arranged as to throw it open, will be caught and held when closed by a spring-catch *o*. On the under side or inner face of the cap a^2 is a suitable projection *r*, and one of the drivers *k* (that one seen at the right in Figs. 2, 3, and 4) has a head which projects up nearly to the inner surface of the cap a^2, and is beveled at its top. In the drawings this upright or driver is represented as standing just in advance of the projection *r* on the closed cap, and this is the position it will occupy at starting. Now when the carrier *j* shall have completed its rotation at its next impulse this beveled head on the driver will take under the projection *r* and force the cap a^2 free of its catch *o*, so that it may fly open. The other drivers *k* will not project up far enough to reach the projection *r*. I prefer to utilize one of the drivers *k* as a means for forcing the catch of the cap, and I prefer to also form the projection *r* by indenting the thin metal of the cap a^2 from the outside, so as to produce an embossment on its inner face.

In order that the exhausted pellet-ring may be the more conveniently removed, I prefer to cut each ring nearly through at one point by a radial slit. This slit is seen at *s* in Fig. 2.

Having thus described my invention, I claim—

1. In a lamp or lighter adapted to be carried on the person, the combination, with the lamp body or reservoir having a cylindrical neck furnished with a screw-thread, of the washer-like carrier *j* for the pellet-rings screwed thereon, means, substantially as described, for holding the pellet-rings in place thereon, and means for rotating said carrier, whereby it is gradually driven upward by its rotation on the cylindrical part of said reservoir, substantially as set forth.

2. In a lamp or lighter adapted to be carried on the person, the combination, with a casing and the lamp body or reservoir having a cylindrical neck furnished with a screw-thread, of the carrier *j*, screwed thereon, the ratchet *f*, embracing the cylindrical neck of the reservoir, the upright drivers *k* on said ratchet and extending through apertures in said carrier, the pawl-arm *h*, the pawl *g*, carried thereby and engaging said ratchet, and the push-pin whereby said pawl is actuated and the carrier *j* intermittently rotated, substantially as set forth.

3. In a lamp or lighter adapted to be carried on the person, the combination, with the casing, the lamp body or reservoir having a screw-threaded neck, the carrier *j*, screwed thereon, the ratchet, the drivers whereby the ratchet drives the carrier, and the pawl *g*, of the stop-pawl *i*, having a tail *i'* to bear on the tail of the pawl *g*, and the push-piece i^2 on the tail of the pawl *i* and projecting through the casing, whereby both pawls may be lifted out of engagement with the ratchet by pressure on said push-piece, substantially as set forth.

4. In a lamp or lighter adapted to be carried on the person, the combination, with a casing having a spring-catch *o* and a cap a^2, held closed by said catch, of the rotatable carrier for the pellet-rings, the drivers *k*, and mechanism for rotating said carrier through the medium of said drivers, said cap a^2 being provided with a projection *r* in the path of the drivers and one of said drivers having its head adapted to take under said projection *r*, whereby the cap a^2 is forced open at each rotation of the carrier, substantially as set forth.

5. In a pocket lamp or lighter, the combination, with a casing comprising a ring *a*, circular interiorly, the caps *a'* and a^2, hinged thereto, the catches which hold said caps when closed, and a spring-retracted push-pin which releases the outer cap *a'*, of the lamp proper, consisting of a lamp body or reservoir *d*, convex on its outer face and furnished with a neck *d'* and a raised circular flange which fits into the ring *a*, and the bayonet-fastenings *e*, whereby the lamp-body is detachably secured to the ring.

6. In a pocket lamp or lighter, the combination, with the lamp-body furnished with a cylindrical neck having a filling-aperture at its top and with an externally-screw-threaded cover d^5, which fits over said neck and forms a part thereof, as set forth, of the wick-tube secured in said neck and projecting out through an aperture in said cover, whereby rotation of the latter is prevented, the ratchet *f*, embracing said neck below the edge of said cover, means for rotating said ratchet, a carrier *j*, of washer-like form, screwed into said cover, and the drivers *k*, all arranged to operate substantially as set forth.

7. A pellet-ring or carrier having thereon a circularly-arranged series of embossments to receive igniting material, said embossments being elongated radially, as set forth, whereby the maximum number of pellets may be employed without reducing the quantity of the igniting substance.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM F. FOLMER.

Witnesses:
J. D. COPLINGER,
HENRY CONNETT.