

PATENT SPECIFICATION



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COMPLETE SPECIFICATION.

Improvements in or relating to Automatic Pocket Lighters.

I, ALBIN HOPF, of 1, Obere Ispringerstrasse, Pforzheim, Germany, of German nationality, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to automatic pocket lighters, and more particularly to automatic pocket lighters of the type in which a fuel reservoir is adapted to slide telescopically into a case and in which the spark-producing device is disposed in a recess in the fuel reservoir.

Lighters of this type as hitherto constructed have the defect that it is difficult to take the two sections apart for purposes of cleaning or for renewing the flint, owing to the fact that they are connected together by screws and other means whose loosening is a comparatively difficult and complex operation. Moreover the means for actuating the spark-producing device are disposed inside the case or housing in such a manner as to occupy an excessively large space, so that a case of comparatively large dimensions is necessitated.

The object of the present invention is to overcome the various defects enumerated above and to provide a pocket lighter in which the means for actuating the spark-producing device are arranged conveniently to occupy a very small space. According to the invention a rack for actuating the spark-producing friction wheel is hingedly mounted in the bottom of the case of the lighter and held in engagement with a pinion mounted on the axle of the friction wheel by means of a spring disposed beneath its lower end. The case and reservoir are pressed apart by a spring and are held together by the cap or hood for covering the wick, which is connected with the case and projects through an opening provided in the wall thereof and acts as a stop to define the limits of movement of the two parts.

The friction wheel of the automatic pocket lighter according to the invention is so constructed that the usual ratchet mechanism is disposed within the interior of the wheel so as to reduce the breadth of the lighter as a whole and enable it

to be of maximum compactness. For this purpose the clutch disc or plate situated on the axis of the friction wheel is disposed in a central recess in the wheel, the opposed surfaces being provided with coupling elements.

In order that the invention may be fully understood, reference will now be made to the accompanying drawings which illustrate by way of example a construction of the automatic pocket lighter according to the invention and in which

Fig. 1 is a side elevation of the pocket lighter according to the invention, part of the casing being broken away,

Fig. 2 is a vertical section along the line A—B of Fig. 1,

Fig. 3 illustrates how the wick cap may be moved to allow the case and reservoir to be taken apart, and

Figs. 4 and 5 are views of the friction wheel with the ratchet mechanism disposed in its interior.

The automatic pocket lighter according to the invention is composed of the upwardly open case *a* and the fuel tank *b* adapted to slide longitudinally therein against the action of a spring *c*. In a recess *d* the fuel reservoir carries the spark producing device which is mounted on the lower surface *e* of the recess. The friction wheel *f* is provided laterally with a pinion *g* engaged by the actuating rack *h* which extends to the base of the case *a* and is pivoted on an axle *i*. A spring *k* is mounted on the axle *i* and has one end engaging under the foot of the rack *h* thus tending to rock the rack around the axle *i* and so hold the top of the rack in constant engagement with the pinion *g*. A guide-way *l* is let into a side wall of the tank *b* which receives the rack and is broadened towards its lower end at *m* to ensure the certain guidance of the rack. The hood or cap *o* for covering the wick is attached to a flap *p* which is hinged to the outer wall of the case *a* and hoods an aperture *q* in the wall of said case, and in the normal position, shown in Fig. 1, acts as a stop to limit the relative movement of the telescoping parts *a* and *b*.

If it is required to take the lighter apart for the purpose of cleaning or for renew-

ing the flint, the cap *o* must be brought out of range of the telescopic elements as shown in Fig. 3 of the drawings. When the two parts, viz. case and fuel reservoir, are pushed slightly together, the cap *o* on the flap *p* can be moved outwards through the aperture *r* thus enabling the lighter to be disassembled. In use the cap *o* is held in the position shown in fig. 1 by the friction of the hinge by which the flap *p* is attached to the case.

As shown in Fig. 4 the friction wheel *f* is provided with a central recess *s* and mounted on an axle *u* disposed in the usual manner in a bracket *t*. On one side the wheel *f* is left plain, whilst on the other side a wall *v* is formed which is provided with recesses or cavities *w*¹ having rising slide surfaces *v*¹. In the interior of the recess *s* a clutch disc or plate *w* is mounted on a square section *w*² of the axle *u*, and is provided with rising projections *x* corresponding to the recesses *w*¹, whereby a coupling is set up between the friction wheel and the clutch plate in such a manner that the axle *u* is freely rotatable in one direction and in the opposite direction the friction wheel is coupled. A spring *y* supports itself against the clutch plate *w* so that the latter is pressed against the inner wall *v* of the friction wheel and the coupling surfaces maintained in constant engagement. On one end of the axle *u* the pinion *g* is secured, which engages with the rack *h* as shown in Fig. 1.

The lighter is operated by pressing the case *a* and fuel reservoir *b* together against the action of the spring *c*, whereby the rack *h* operates the pinion *g* and the friction wheel is set in motion. A shower of sparks is thus produced, which ignites the wick, the cap *o* having been removed from the wick by the compression of the two parts of the lighter. The flame appears within the lateral aperture *r* provided in the case *a* of the lighter.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. An automatic pocket lighter comprising a fuel reservoir adapted to slide telescopically into a case and a spark producing device disposed in a recess in said fuel reservoir, wherein the friction wheel actuating rack is hingedly mounted in the base of the case and held in engagement with a pinion mounted on the axle of the friction wheel by means of a spring disposed beneath its lower end.

2. An automatic pocket lighter according to Claim 1 comprising a guideway for the rack provided in a side wall of the fuel reservoir, said guideway being widened somewhat towards its lower end.

3. An automatic pocket lighter according to Claims 1 and 2 comprising a cap for covering the wick, which is connected with the case of the lighter and projects through an aperture in the wall thereof, said cap being adapted to act as a stop to limit the relative movement of the two telescopic parts and as a means for holding said parts together.

4. An automatic pocket lighter according to Claims 1 to 3 wherein the wick cap is carried by a flap member hinged to the outer side of the case and projecting through an aperture in the wall thereof to act as a stop.

5. An automatic pocket lighter according to Claims 1 to 4 wherein a clutch plate for transmitting the motion of the rack to the friction wheel is disposed in a central recess in said friction wheel.

6. An automatic pocket lighter according to Claims 1 to 5 wherein the friction wheel is plain on one side and provided on the other side with cavities having rising slide surfaces against which corresponding projections on the clutch plate are pressed by the action of a spring.

7. An automatic pocket lighter constructed, arranged and adapted to operate substantially as described with reference to the accompanying drawings.

Dated this 16th day of August, 1932.

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[This Drawing is a reproduction of the Original on a reduced scale.]

