PATENT SPECIFICATION

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COMPLETE SPECIFICATION.

Pocket Lighter.

I, ADOLF KINZINGER, of No. 24, Kronprinzenstrasse, 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 a benzine pocket lighter, in which by depressing a lever the friction wheel is rotated and the wick cap lifted.

It is known to arrange the friction wheel and a ratchet wheel rigidly on a common bearing bush, and to mount this latter rotatably on an axle so that during the opening oscillation of an oscillatable arm of the wick cap, also mounted freely rotatable on this axle, caused by means of a pressure lever, the friction wheel is also rotated by means of the pawl suspended on the oscillatable arm and engaging in the teeth of the ratchet wheel, and sparks are produced, the pawl being guided back loosely over the ratchet wheel during the closing oscillation of the wick cap arm.

The novelty consists in that the drive of the friction wheel is effected by means of a two-armed pressure lever having a bow-shaped arm, extending under the axle of the friction wheel, and provided with an internal toothed portion in mesh with a toothed segment on, or a pinion rigidly connected to, the oscillatable arm carrying the wick cap

An embodiment of the invention is illustrated in the accompanying drawing in which:

Fig. 1 shows in front elevation the pocket lighter, one bearing plate being removed and the casing partly broken away.

Fig. 2 is a side elevation from the pressure lever side.

Fig. 3 is a rear elevation, the other bearing plate being removed.

Fig. 4 is a front elevation of the lighter, but with the wick cap swung up.

Fig. 5 is a top plan view of Fig. 4.

Fig. 6 is a central section and a side view of the friction wheel, mounted on a bearing sleeve.

Two bearing plates *b* are mounted on the top plate *a* of the lighter. The bearings for the pressure lever *c* and for the friction wheel *d* are arranged in the bearing plates *b*. The friction wheel *d* is mounted on a square bearing sleeve d_1, which is rigidly connected to the ratchet wheel *e*. The square bearing sleeve d_1 is loosely rotatable on a rigid axle *f*. The wick cap *g* is mounted on an arm *h*, oscillatable on the axle *f*, which arm carries a hook-shaped pawl *i* and a toothed segment *k* with which internal teeth *m*, arranged on a bow shaped arm of a two-armed pressure lever *c* extending under the axle *f*, mesh for the purpose of effecting a rotary drive.

The lighter is operated by depressing the pressure lever *c*. The internal teeth *m* then actuate the toothed segment *k*, which turns so that the oscillatable arm is swung from the position shown in Figs. 1 to 3 into that shown in Figs. 4 and 5. The friction wheel *d* participates in this turning movement in that the pawl *i* engages tightly in the ratchet wheel *e* (Fig. 3) during the opening oscillation of the arm *h*, and sparks are therefore projected towards the wick, whereas during the closing oscillation of the arm the pawl slides loosely over the ratchet so that the friction wheel *d* is always only rotated in one direction and rests on the cerium stone *n* pressed thereon. The pressure lever *c* is acted upon by a spring *o*, which presses it back into the position shown in Figs. 1 and 3 after the removal of the pressure, so that the wick cap is again brought into its closing position.

The depressing of the pressure lever *c* for the purpose of opening the wide cap *g* and for turning the friction wheel *d* is opposed not only by the frictional resistance between the friction wheel *d* and the cerium stone *n*, but also by the resistance which is produced by the arrangement according to the invention of a locking spring *p*, which always engages by means of a boss in the gap situated between two teeth of the ratchet wheel *e* (Fig. 3). The locking spring *p* is in the example illustrated constructed as a spring blade fixed at one end on the plate *a*, the boss, in the case of a sufficiently strong finger pressure being exerted on the pressure lever *c* in the direction A, yielding in downward

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direction, so that the ratchet wheeel *e* and therewith the friction wheel *d* are suddenly released for rotation so that the latter under the influence of the finger pressure, acting most strongly at this instant, jerks back rapidly in a manner necessary for producing a suitable stream of ignition sparks. According to the amplitude of the opening oscillation of the oscillatable arm *h*, which amounts to about a quarter revolution, the ratchet wheel *e* is provided with four teeth on its circumference.

Instead of the blade spring *p* having a boss, some other similar acting means suitable for effecting the necessary braking of the friction wheel may be employed, for example a spring loaded locking pin or the like, which engages between the teeth of the ratchet wheel *e* or of another toothed wheel rigidly connected to the friction wheel.

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.—A pocket lighter, in which the friction wheel and a ratchet wheel are rigidly connected and rotatably mounted on a common axle so that during the opening oscillation of the oscillatable arm of the wick cap, also freely rotatable on this axle, caused by means of a pressure lever, the friction wheel is rotated by means of the pawl suspended on the oscillatable arm and engaging in the teeth of the ratchet wheel, and produces a stream of ignition sparks, whereas the pawl slides back loosely over the ratchet wheel during the closing oscillation of the wick cap arm, characterized in that the drive of the friction wheel is effected by means of a two-armed pressure lever having a bow shaped arm extending under the axle of the friction wheel and provided with internal teeth in mesh with a toothed segment on, or a pinion rigidly connected to, the oscillatable arm carrying the wick cap.

2.—A pocket lighter as claimed in claim 1, characterized by the arrangement of a locking means which, under the action of a spring, exerts a retarding pressure against the circumference of a toothed wheel rigidly connected to the friction wheel and, in the event of a sufficiently strong finger pressure being exerted on the pressure lever, suddenly releases the toothed wheel and consequently the friction wheel for rotation so that this latter, under the action of the finger pressure which is very strong at this instant, performs a strong sudden rotation.

3.—A pocket lighter as claimed in claims 1 and 2, characterized in that the toothed wheel, between the teeth of which the locking means engages, is the ratchet wheel for the friction wheel.

4.—A pocket lighter as claimed in claims 1 and 2, characterized in that the locking means consists of a blade spring fixed on the top plate of the lighter and having a yieldable boss adapted to always engage in the gaps between the teeth of the toothed wheel.

Dated this 15th day of May, 1931.

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Fig. 1.

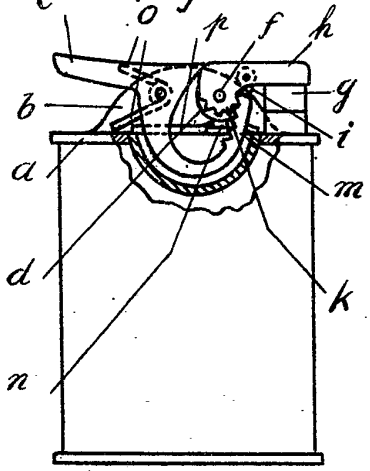


Fig. 2.

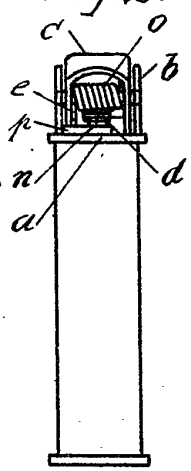


Fig. 3.

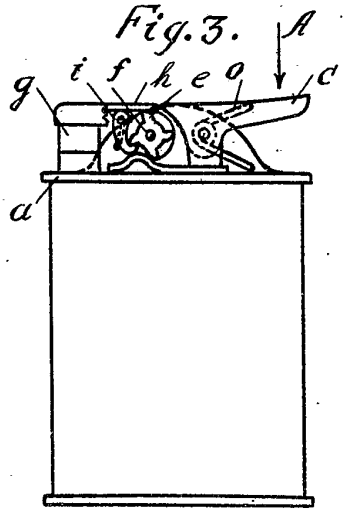


Fig. 4.

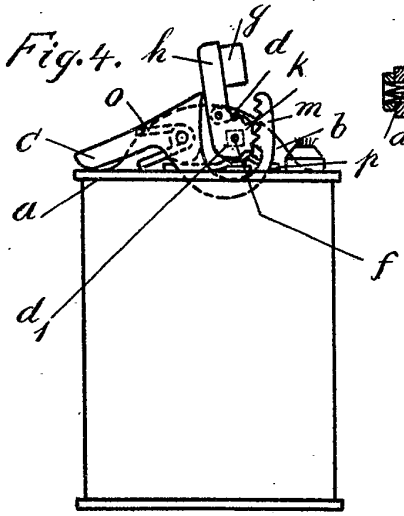


Fig. 6.

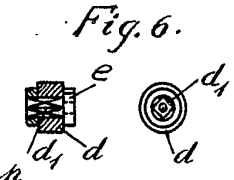
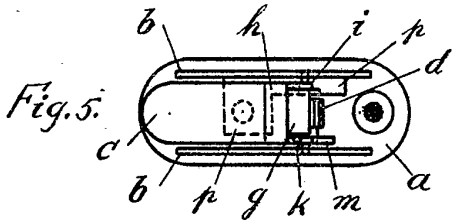


Fig. 5.



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