

## PATENT SPECIFICATION

482,408



Application Date : April 9, 1937. No. 10179/37.

Complete Specification Accepted : March 29, 1938

## COMPLETE SPECIFICATION

## Friction Wheel Pocket Lighter

I, HERMANN DROLLINGER, of No. 8, Belfortstrasse, 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 benzine pocket lighters of the type in which a friction wheel is operatively connected to a member carrying the wick-hood, and this member, or wick-hood carrier, is under the control of the usual pivoted lid. A spring is provided which tends to throw the lid into its open position, and, when the lid is released, it swings out and operates the wick-hood carrier which in turn rapidly rotates the friction wheel and produces sparks from the wheel.

Lighters of this known type have the drawback that the spring which tends to throw open the lid is not strong enough initially, or gradually loses its elasticity so that it is unable to throw the lid as rapidly as required for effective sparking.

It is an object of the invention to eliminate this drawback. To this end, instead of placing the spring directly on the pivot of the lid where the space is limited, the spring is arranged where ample space is available. The spring is a coiled spring for exerting pressure, and is arranged in a telescoping container whose tubular members protect the spring against damage. The container is connected at one end to a pivot arranged on the lid of the lighter below the axle about which the lid oscillates, and at the other end to the body of the lighter.

Another object of the invention is to provide reliable means for operating the friction wheel through the wick-hood carrier.

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

Fig. 1 shows in elevation the body of a pocket lighter with wick-hood raised.

Fig. 2 shows the top part of the pocket lighter in vertical section.

Fig. 3 is a top plan view of Fig. 1.

Fig. 4 shows on larger scale a section on the line 4—4 in Fig. 2.

Fig. 5 shows the top part of the pocket lighter, the wick-hood being lowered.

Fig. 6 is an elevation of the complete lighter including a sheath in which the body of the lighter is placed.

Fig. 7 is a top plan view of Fig. 6.

Figs. 8, 9 and 10 show constructional details of the igniting and releasing device.

On the top end of the body *a* of the pocket lighter two uprights *b* are mounted in which the ends *c* of the axle *d* are journalled. Tube *e* for the cerium stone extending into the benzine chamber *f* (Fig. 4) ends between these uprights *b*.

A blade spring *h* carrying on its free end the wick-hood *g* is fixed on the axle *d* by means of two cheeks *i*, one of these cheeks *i* having a slit *k* (Fig. 8) so that an inwardly directed pawl *m* is bent to engage one or other of a series of ratchet teeth in one side of the friction wheel *o* (Fig. 4 at left). The wick-hood carrier *h, i, k, m* by bearing against the inner side of lid *n* which is also pivoted about the axle *d* by means of two lateral lugs, participates in the movements of this lid.

During the opening movement the feed pawl *m* engaging a ratchet tooth of friction wheel *o* (Fig. 4), suddenly rotates this friction wheel over the cerium stone *p* so that sparks are produced. The sudden opening movement of lid *n* is caused by a pressure spring *q* located in two telescoping tubes *q*<sub>1</sub> and *q*<sub>2</sub>. The spring *q* is thus protected against unfavourable influences, for instance, against benzine, dirt, and rust. A hook *a*<sub>1</sub> on the body engages in the end plate of tube *q*<sub>2</sub>, and a pin *r*<sub>1</sub> is inserted in the end plate of tube *q*<sub>1</sub>. The pin *r*<sub>1</sub> is made integral with a fork *r*, Fig. 1, which projects beyond the end plate of the tube *q*<sub>1</sub> and whose arms are pivoted to the lugs of the lid *n* below the axle *d*. The spring container formed by the two tubes *q*<sub>1</sub> and *q*<sub>2</sub> is thus held in downwardly inclined position with respect to the friction wheel *o*, and the spring *q* produces a very rapid rotation of the friction wheel *o* when the lid is released.

The blade spring *h* is slightly bent away from the inner side of lid *n* so that the wick-hood *g* rests resiliently on the upper

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edge of the wick tube *s* before lid *n* has reached its final closing position. In this manner a tight closing of the wick tube *s* is ensured.

5 A double hook *t* adapted to engage behind the inwardly bent edge *n*<sub>1</sub> of the lowered lid *n* securely holds this lid in the closed position. The hook *t* is held in the closing position by means of a helical wire  
10 spring *t*<sub>1</sub>, which is wound about the upper end of the wick tube *s* as a loop *t*<sub>2</sub> bearing on the top plate *a*<sub>2</sub> of the body.

The lid *n* is released by pressure exerted on lever *t*<sub>3</sub> in the direction of the arrow A  
15 (Fig. 1). This produces a movement of hook *t* in the opposite direction B (Fig. 2), so that hook *t* moves away from the inwardly directed edge *n*<sub>1</sub> of the lid *n*, and this lid, being thereby released, swings  
20 from the closed position shown in Fig. 5 into the open position shown in Figs. 1 and 2. Hook *t* is oscillatably mounted in two lugs *u* by means of an axle *v* which has a square hole in which the lever *t*<sub>3</sub> is  
25 inserted. The lever *t*<sub>3</sub> has the shape shown in Fig. 9, being bent from a piece of wire. The two spread resilient ends *t*<sub>4</sub> of this lever are inserted into the square hole of the axle *v* and securely hold by  
30 friction the lever *t*<sub>3</sub> in this hole. The lever *t*<sub>3</sub> projects from the outer side of a sheath *w*, which is pushed over body *a*. The lever *t*<sub>3</sub> is inserted through an aperture in sheath *w* into the square hole of the axle *v*  
35 and thus in a simple manner secures the sheath *w* on the body *a* of the pocket lighter. If the sheath *w*, which preferably has air slots *w*<sub>1</sub> for the admission of combustion air and at the  
40 same time forms a wind screen for the flame, has to be removed from the body *a* of the pocket lighter, the resilient arms *t*<sub>4</sub> of the lever *t*<sub>3</sub> must first be pulled out of the square hole of axle *v*. The top plate  
45 *w*<sub>2</sub> of sheath *w* has an aperture through which the lid *n* can pass.

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

1.—A benzine pocket lighter having a friction wheel, a wick-hood carrier

operatively connected to the friction  
wheel, a lid controlling the wick-hood  
carrier, and a spring tending to throw  
open the lid, characterised in that the  
spring is a compression spring placed in a  
telescoping case comprising two tubes one  
of which is anchored on the body while  
the other is connected to a pivot arranged  
on the lid below the axle about which the  
lid oscillates. 55  
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2.—A benzine pocket lighter as claimed in claim 1, characterized by a pin secured to one of the tubular members on which  
65 pin the spring is placed, and a fork integral with the pin pivotally connected to the lid.

3.—A benzine pocket lighter as claimed in claim 2, characterized in that a hook on the body of the lighter engages in a hole  
70 in the end plate of one of the tubes, and that the pin is secured in a hole in the bottom plate of the other tube. 75

4.—A benzine pocket lighter as claimed in any one of the preceding claims, characterized in that the wick-hood is  
80 secured to a wick-hood carrier in the shape of a blade spring with two cheeks pivotally mounted on the axle about which the lid oscillates, and is controlled by the lid, and that one of its cheeks is made as a pawl cooperating with ratchet  
85 teeth in one side of the friction wheel.

5.—A benzine pocket lighter as claimed in any one of the preceding claims, characterized by a hook for locking the  
90 lid, and a spring for holding the hook against a projection on the inner side of the lid, which spring is partly wound about the wick tube.

6.—A benzine pocket lighter as claimed in claim 5, characterized in that the hook  
95 is mounted on a shaft having a square hole in one of its ends, and that a lever is equipped with a pair of elastic arms adapted to enter the hole in the shaft.

7.—A benzine pocket lighter as claimed in claim 6, characterized by a sheath  
100 adapted to be placed on the lighter body and having an opening for the reception of the elastic arms of the said lever.

Dated this 9th day of April, 1937.

LESLIE N. COX,  
Agent for the Applicant.

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

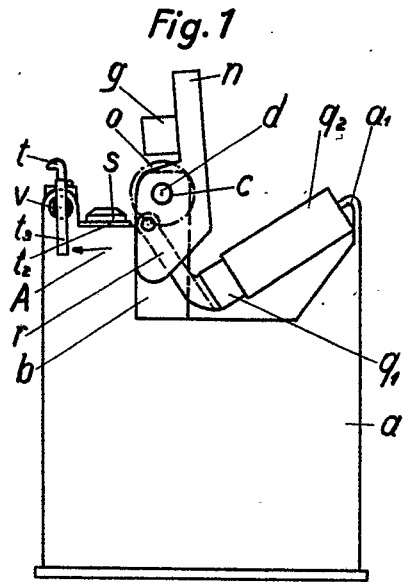


Fig. 6

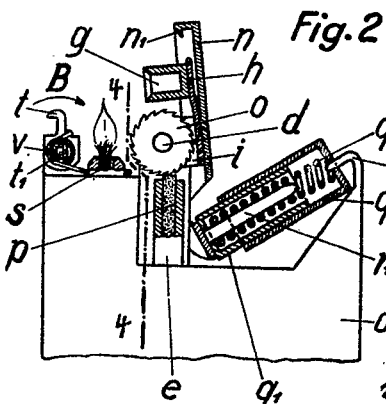
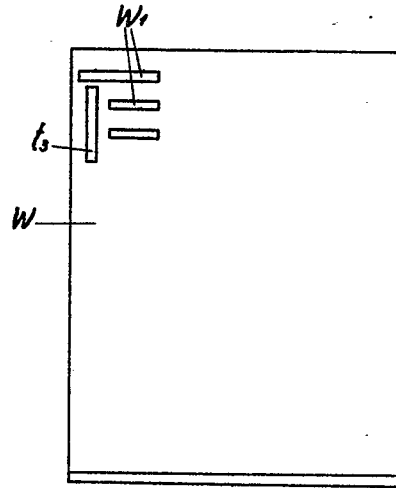


Fig. 4

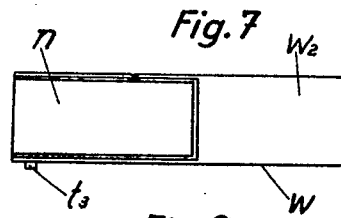


Fig. 8

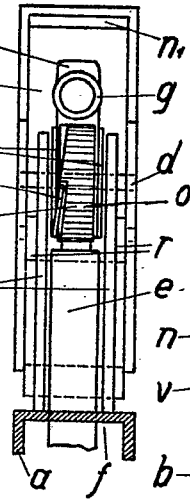
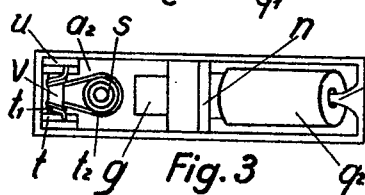


Fig. 5

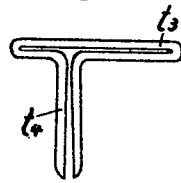
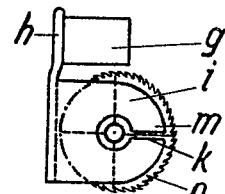


Fig. 9



Fig. 10