Feb. 7, 1933. A. KAUFMANN 1,896,140

POCKET LIGHTER

Filed March 30, 1931

Fig.1

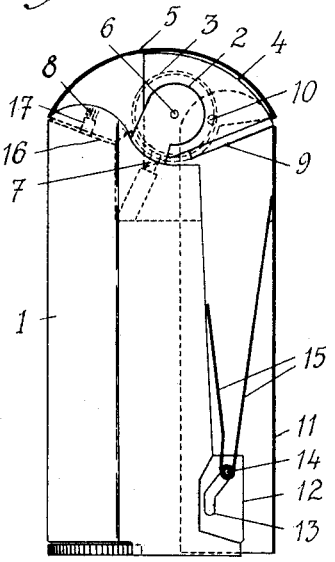


Fig.3

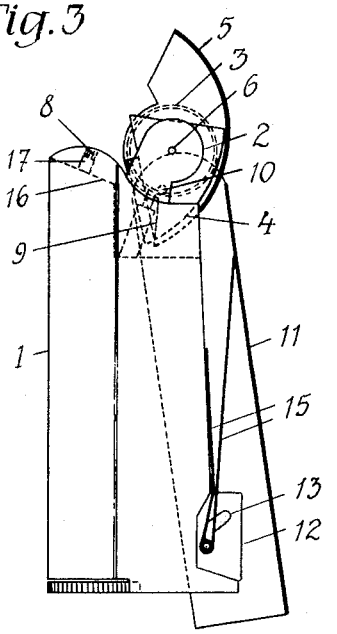


Fig.2

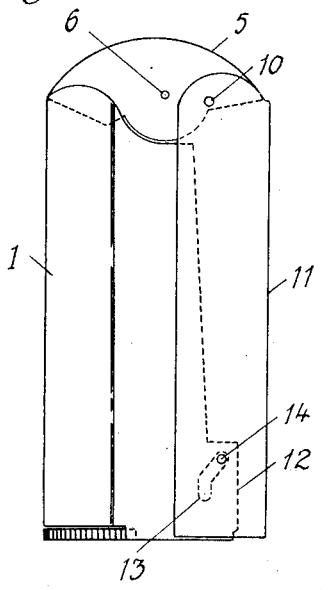
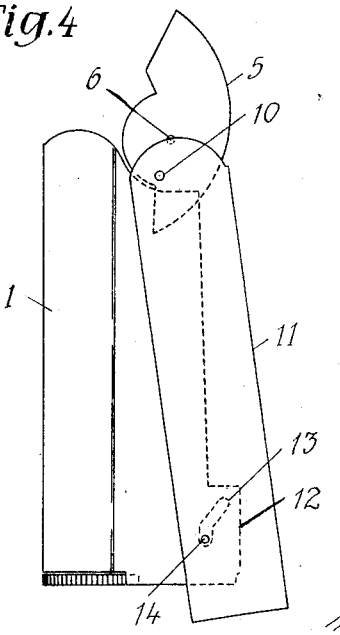


Fig.4



INVENTOR
A. KAUFMANN
BY [illegible] ATTY.

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UNITED STATES PATENT OFFICE

ALOIS KAUFMANN, OF VIENNA, AUSTRIA

POCKET LIGHTER

Application filed March 30, 1931, Serial No. 526,465, and in Austria February 28, 1931.

The invention relates to a pyrophoric lighter of the kind in which the sparking is produced by the ratchet movement of the friction wheel, the cover being opened and closed by an end wall of the casing designed as a spring controlled rocking lever.

According to the invention the lighter has a rotatable cap which is actuated by the movement of the rocking cover and, in rotating, positively carries with it a driver for the friction wheel.

A feature of the invention is that the friction wheel, its driver and the aforesaid cap are rotatable on a single or common axle which is contained in a bracket attached to the fuel container.

The upper part of the rocking lever is articulated on the cap, while its lower part carries a pin or stud on which it rocks and by means of which it slides in angularly bent guide slots provided in extensions of the fuel container. When a pin is employed, it may also carry the spring which urges the cover and cap to the closed position.

Preferably the closed upper wall of the fuel container, in which the wick tube is located, is sloped as much as possible, so that the flame burns out of contact with the friction wheel, which is thereby protected from being burned. The wick tube can also be disposed nearer the friction wheel, thus lessening the dispersion of the sparks and ensuring more certain ignition of the wick, with the result that the flint lasts longer.

A lighter according to the invention is distinguished by particular simplicity, so that it is extremely cheap to produce. Owing to the positive guidance of the friction-wheel driver, the lighter sets in an absolutely reliable manner.

A typical embodiment of the invention will now be described with reference to the accompanying drawing.

Fig. 1 shows a lighter according to the invention, in section parallel to a side wall and in the inoperative position.

Fig. 2 is an outside view of the lighter, in the position represented in Fig. 1.

Fig. 3 is a section similar to Fig. 1, with the lighter in operative position.

Fig. 4 is an outside view corresponding to Fig. 3.

As illustrated, there is attached to the fuel container 1, a bracket 2 in which is mounted a pin 6 carrying the rotatably mounted friction wheel 3, the friction wheel driver 4 and the lighter cap 5. The periphery of the friction wheel is provided with teeth which, in rotating, disrupt sparks from the flint 7, thus igniting the fuel soaked wick 8. Along its periphery, the friction wheel 3 is provided with recesses in which the driver 4 engages, in rotating, by means of a flexible extension 9, thus carrying round the friction wheel 3. The said driver 4 is seated inside the lighter cap 5 and is compelled to share the rotational movements of the latter. Externally, the cap 5 is provided, on both sides, with pins 10, which engage in corresponding openings in the rocking cover 11, the two being thus articulated together. The side walls of the fuel container 1 are provided with extensions 12 having slots 13 in which the ends of a pin 14, passing through both side walls of the rocking cover, slide during the movement of the cover. This pin 14 also carries a spring 15, the one end of which bears against the inner end wall of the fuel container, and the other end against the inner surface of the end wall of the rocking cover 11, thus constraining the two into the neutral or inoperative position shown in Figs. 1 and 2. The closed upper wall 16 of the fuel container, which carries the wick tube 17, is arranged at a steep angle towards the longitudinal axis of the lighter, so that the wick tube is tilted close to the friction wheel.

The lighter functions in the following manner:—

On the rocking cover being pressed inwards against the action of the spring 15, motion is communicated to the articulated cap 5, which being mounted on the pin 6, rotates about the latter and thus actuates the friction wheel driver 4. The flexible extension 9 of the driver 4 engages in a recess in the lateral surface of the friction wheel 3 and thus carries the latter round with the driver. This rapid movement of the friction wheel strikes sparks from the flint 7 and

ignites the wick 8. As the pins 10 move downward during the rotation of the cap 5, the rocking cover 11 has to share this downward movement and this is permitted by the pin and slot connection 13, 14, the pin 14, together with the spring 15, travelling in the slots 13 into the position shown in Figs. 3 and 4.

On the pressure on the cover 11 being released, the operation is reversed, the cover being rocked about the pin 14 and moved upward by the action of the spring 15, thereby returning the cap 5, and the driver 4 into the neutral position (Figs. 1 and 2), while the flexible extension 9, which has slipped back along the side wall of the friction wheel 3 (the latter remaining stationary) once more engages in a lateral recess in the wheel ready to drive the latter forward again next time the lighter is operated.

The described lighter has the advantage that it can be operated in a simple manner, solely by means of the fingers of one hand. It only needs to be squeezed, and always returns automatically into the closed, neutral position.

What is claimed is:

1. A pyrophoric pocket lighter, comprising in combination a fuel receptacle having a wick guide and a pyrophoric material guide in its upper wall, a friction wheel mounted for rotation adjacent the pyrophoric material guide, a friction wheel driver, a pivotally mounted cap for the wick guide, pyrophoric material guide and friction wheel, rotatable about the wheel axis, a U-shaped lever, the fuel receptacle being formed near the lower end with a cam-shaped slot, a pin operating in said slot and passing through the U-shaped lever to provide a connection for creating combined rocking and sliding movement of said U-shaped lever when pressure is applied thereto, pivotal means between the upper end of the U-shaped lever and the cap, whereby when pressure is applied to the U-shaped lever the cap and the friction wheel driver are rotated, and spring means acting when free to move the U-shaped lever to a position to close the cap.

2. A pyrophoric pocket lighter, comprising in combination a fuel receptacle having a wick guide and a pyrophoric material guide in its upper wall, a friction wheel mounted for rotation adjacent the pyrophoric material guide, a friction wheel driver, a cap for enclosing the wick guide, pyrophoric material guide and friction wheel and driver and rotatable about the wheel axis, a U-shaped lever pivoted at its upper end to the cap at one side of the axial line of the cap, means connecting the lower end of the U-shaped lever to the receptacle for permitting a combined rocking and sliding movement to rotate the cap and the friction wheel and driver, and spring means acting when free to move the U-shaped lever to a position to close the cap.

3. A pyrophoric pocket lighter, comprising in combination a fuel receptacle, a wick guide carried by the receptacle, a pyrophoric material guide adjacent the wick guide, a friction wheel mounted for rotation adjacent the pyrophoric material guide, a friction wheel driver, a cap rotatable about the wheel axis, an extension on the lower end of the receptacle formed with an angularly inclined slot, a U-shaped lever embracing the extension, a pivoted connection between the upper end of the U-shaped lever and the cap, a pin passing through the U-shaped lever and the slot, whereby when pressure is applied to the U-shaped lever the latter slides and rocks, and spring means normally constraining the U-shaped lever to a position to close the cap.

4. In a pyrophoric lighter, the combination with a fuel receptacle having a pair of ears, a pyrophoric material guide and a wick guide in the upper wall of the receptacle, a pivot pin supported in the ears, a friction wheel mounted on the pivot pin to cooperate with the pyrophoric material guide, a cap mounted on the pivot pin, the cap being extended forwardly and rearwardly of the pivot pin, the forward extension fitting over the wick guide, means between the cap and friction wheel for operating the latter when the cap is opened, a U-shaped lever embracing one side edge of the fuel receptacle and provided with a pair of extended ears, a pivot pin connecting the extended ears and the rearwardly extended portion of the cap, the lower side portions of the receptacle having a cam slot, a pin connecting the sides of the U-shaped lever and extending through the cam slot, and a spring interposed between the U-shaped lever and the edge wall of the fuel receptacle, whereby upon pressure being applied to the U-shaped lever, the pin and cam slot cause said lever to move inwardly and downwardly and the cap and friction wheel to partially rotate.

In testimony whereof I affix my signature.

ALOIS KAUFMANN.