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H. THORENS

AUTOMATIC LIGHTER

Filed Aug. 9, 1922

Fig. 1.

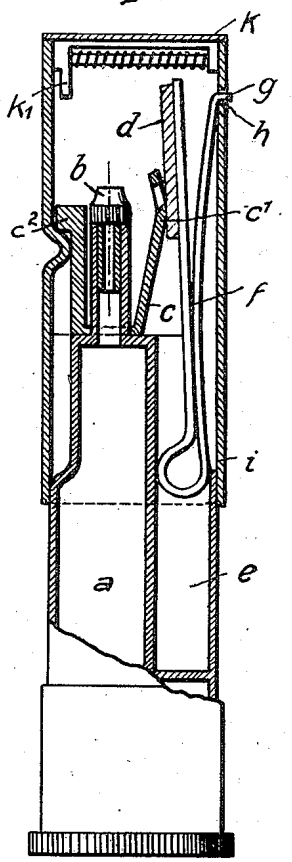


Fig. 2.

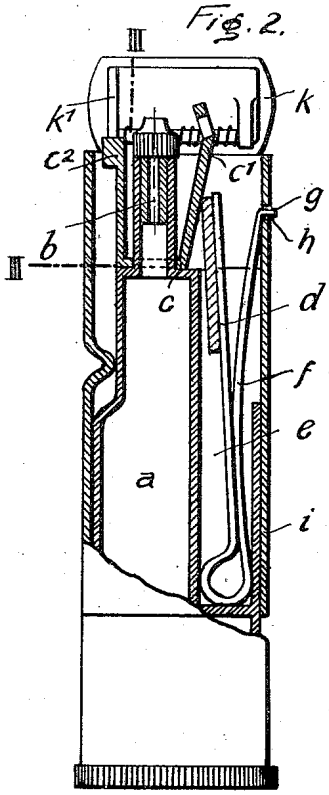
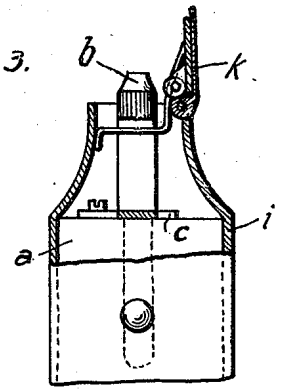


Fig. 3.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC LIGHTER.

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To all whom it may concern:

Be it known that I, HERMANN THORENS, citizen of the Confederation of Switzerland, residing at Sainte-Croix, Vaud, Switzerland, have invented certain new and useful Improvements in Automatic Lighters, of which the following is a specification.

The present invention relates to an automatic lighter in which the sparks are obtained by friction of a long stone against sharp edge. This lighter is characterized by the fact that when it is under tension, the stone is placed above the burner, its position after the spark has been obtained, being such that no organ will hinder the utilization of the flame.

Referring to the annexed drawing which shows, as descriptive but not restrictive, a form of a lighter according to the invention:

Fig. 1 is a vertical sectional view partly in elevation of a form of the invention, showing the organs in their position when the lighter is not in use;

Fig. 2 is a similar view showing the position of the organs when the spark has just been produced by the sliding of the socket on the body.

Fig. 3 is a similar view showing the lighter taken at 90 degrees comparatively to the preceding figures.

Referring now, more particularly, to the drawings the lighter comprises a body *a* forming a fuel reservoir in which is placed the wick coming out from the burner *b*. The latter is placed between the branches of a strap *c* whose bottom is fixed to the upper part of the reservoir. The branch *c'* carries the rubber which cooperates with the stone *d* in order to produce the spark; the branch c^2 forms a stop whose utility will be stated hereafter.

The reservoir is provided with a cavity *e* containing the stone-holder *f*; the latter consists of a bent up plate-spring. One of the extremities of said spring carries the stone *d* and the other one (*g*) is bent back at a right angle and catches in a little slit *h* of the sliding socket *i*. The tension of this plate-spring tends, on one side, to press the stone *d* against the rubber *c'* and, on the other side, to couple together the stone-holder and the sliding socket *i*, by means of said slit *h*.

In this case, the sliding socket forms the lid of the lighter; for this purpose, its extremity is provided with a flap *k* articulated by means of a joint, a spring always tending to hold this flap shut. The latter extends inwardly in a stop *k'* which, when the sliding socket is drawn downwards, butts against the upper part of the stop c^2. The meeting of these organs causes the lid to be opened.

The sliding socket is guided, by an inner projection, into a groove provided in the body *a*. This groove ends towards the lower part of the body, thus limiting the descending motion of the socket and preventing its removal from the body of the lighter.

When the lighter is not in use, the flap *k* is shut and the organs are in the relative positions shown in Fig. 1, the stone being placed above the burner and above the rubber. A descending motion of the sliding socket brings the organs of the lighter into the position shown in Fig. 2. The stone has been brought into friction with the rubber and its surface has been rubbed, thus producing the spark which lights the wick. This descending motion of the sliding socket has brought the stop *k'* of the flap *k* into contact with the stop c^2 so that, somewhat before the spark is produced, the flap has been opened, thus uncovering the burner and allowing the flame to be lighted.

In order to make it easier to handle the lighter with one hand, the upper part of the sliding socket has been flattened, so that it may be held between the fore-finger and the middle-finger, the pressure of the thumb on the bottom of the body *a* causing the relative motion of the organs producing the spark.

When the organs are in the rest position after the lighter has worked, the stone *d* is lodged in a recess of the strap *c*. It is thus completely out of the reach of the sharp edge of the rubber against which its entire length has been rubbed. It results therefrom that a rational wear of the pyrophoric element is obtained, thus allowing a perfect working of the lighter until the stone is entirely worn away. The latter may be very easily replaced; the stone-holder may be released from the lid and removed from the whole body when the hook *g* engaged in the slit *h* is pushed into the socket. The stop c^2 rests lightly on the wall of the sliding socket; the latter is thus submitted to the reaction caused by the pressure of the stone on the sharp edge of the rubber. This arrange-

ment prevents a wedging of the sliding socket on the body.

Having thus fully described the invention what is claimed as new and desired to be secured by Letters Patent is:—

1. An automatic lighter including a body, a burner in the body, a stop member on the body, a covering socket movable relatively to the body, a resiliently controlled and pivoted flap closing the outer end of the socket and opening upon relative movement of the socket and the body and upon contact with the member, and cooperative members carried respectively in the body and the socket for producing a spark for igniting the burner upon the said opening of the flap.

2. An automatic lighter as claimed in claim 1, wherein a U-shaped bracket is mounted on the body and arranged about the burner, one arm of the bracket constituting the stop member and the other arm of the bracket constituting one of the cooperative members.

3. An automatic lighter as claimed in claim 1, wherein the body is provided with a compartment and wherein the cooperative member carried by the socket comprises a plate spring bent upon itself having one end secured to the cover and a stone carried by the free terminal, the member being accommodated within the compartment upon movement of the socket toward the body so as not to interfere with the flame of the burner.

4. An automatic lighter comprising a body including a fuel receptacle and a compartment parallel with the receptacle, a wick burner connected with the top of the receptacle, a bracket arranged about the burner, the outer arm constituting the stop member and the inner arm constituting a friction element, a covering socket telescoping the body, a spring controlled pivoted flap forming a cover for the socket and opened upon sliding of the socket relatively to the body and upon contact with the stop, a spark producing member carried by the socket for engagement with the friction element to ignite the burner upon relative movement of the socket and the body, and the spark producing member being arranged in the compartment of the body upon the opening of the cover so as not to interfere with the flame of the burner, substantially as and for the purposes set forth.

HERMANN THORENS.