ABSTRACT
In this automatic lighter a lateral control key or push-button is hollow and encloses a spiral spring controlling with one branch one arm of a two-armed pawl driving the ratchet associated with the flint wheel and with the other branch the pressure exerted on the flint, this two-armed pawl being pivoted to the control key. Additionally, in the case of a cigarette lighter operating on gaseous fuel, the lever adapted to lift the burner-and-valve assembly is actuated by one portion of the control key. Thus, the spiral spring has the triple function of returning the control key, urging the flint against the wheel and returning the pawl.

3 Claims, 2 Drawing Figures
IMPROVED AUTOMATIC CIGARETTE LIGHTER

FIELD OF THE INVENTION

This invention relates in general to automatic lighter and has specific reference to improvements in cigarette lighters of this character.

BACKGROUND OF THE INVENTION

It is known, in certain automatic cigarette lighters comprising a pyrophoric flint coating with a sparking wheel, to use the return spring of the control key, lever or pushbutton for acting at the same time as a flint-return spring, but this combined action takes place as a rule through the medium of an intermediate lever, a separate return spring being required for restoring the stepping pawl which drives the sparking wheel through an associated ratchet.

Other lighters are known wherein the flint spring actuates the control key, lever or pushbutton through the medium of a linkage, also with a separate pawl-restoring spring.

SUMMARY OF THE INVENTION

The present invention provides a very simplified solution to this problem wherein a single spring carried by the control key or like member has a triple function exerted directly, that is:

returning the pawl driving the ratchet of the serrated sparking wheel
restoring the control key or other actuator to normal, and
bracing the flint against the sparking wheel.

In the assembly according to the present invention the control key or like actuator pivoted mounted on the lighter body has also pivotally mounted thereon a pawl for driving the ratchet associated with the serrated sparking wheel, this actuator carrying a stud on which a spiral spring is wound for acting directly with one branch on an arm solid with this pawl in order to return the latter to its inoperative position and, also directly but without any intermediate element, by means of its other branch on the outer end of the pyrophoric flint in order to urge this flint against the serrated wheel, the point of contact between this other branch and the flint, considered fixed, act at the same time as a reaction point for returning the actuator to its inoperative position, according to the third function mentioned hereinabove.

On the other hand, it will be seen that the pressure exerted on the flint increases as the control key or pushbutton is depressed, so that the initial movement given to this key is attended by a relatively moderate or minimum resistance, this resistance increasing as the key is depressed, thus imparting a considerable smoothness to this control movement and producing a highly reliable and safe lighter operation.

When the mechanism of this invention is applied to a cigarette lighter utilizing a gaseous fuel, depressing the control key or push button will also open the gas valve.

A clearer understanding of this invention will be had as the following description proceeds with reference to the attached drawing illustrating diagrammatically by way of example a typical embodiment of my improved lighting mechanism. In the drawing:

BRIEF DESCRIPTION OF THE DRAWING:

FIG. 1 is a diagrammatical side-elevational view of a gas-fueled cigarette lighter according to my invention showing the mechanism in an inoperative position; and

FIG. 2 is a similar view showing the mechanism in operation.

DESCRIPTION OF THE PREFERRED EMBODIMENT:

In the drawing, the reference numeral 1 designates the body of a cigarette lighter, 2 is a burner-and-valve assembly comprising a built-in spring (not shown) for closing the valve, 3 is a knurled or serrated sparking wheel co-acting with a flint 4, and 5 is a ratchet wheel drivingly connected to wheel 3.

Pivotedly mounted at fulcrum 6 on body 1 is a control key, lever or pushbutton 7 carrying on the one hand stud 8 having a spiral spring 9 wound thereon and on the other hand a pin 10 to which a pawl 11 is pivoted. Stud 8 and pin 10 are both remote from fulcrum 6. This spring 9 is so disposed that it bears with one branch 9a against an arm 11a rigid with the pawl 11 and with its other branch 9b against the flint 4. Thus, the biasing and restoring spring 9 accomplishes alone and directly the following functions:

returning the control key 7 to its inoperative position by the reaction force exerted upon the stud 8 through the intermediate spring portion wound thereon,
returning the pawl 11 to its inoperative position by spring extremity 9a, and
exerting a thrust against the flint 4 by spring extremity 9b.

In the example illustrated in the drawing the auto-lighting mechanism according to this invention is applied to a lighter utilizing a gaseous fuel wherein a lever 12 fulcrumed at 13 on the body 1 is adapted, in a manner known per se, to open the burner valve 2 during the actuation of the control key or actuator 7.

Of course, and as clearly apparent from the foregoing, this invention should not be construed as being strictly limited to the single form of embodiment shown and described herein, since various modifications and variations may be brought thereto without departing from the basic principle of the invention as set forth in the appended claims.

What I claim as new is:

1. In an automatic cigarette lighter including a body, a sparking wheel rotatably mounted on said body, a ratchet rotatively coupled with said sparking wheel, a flint coating with said sparking wheel, a stepping pawl for driving said ratchet, an actuator pivotally linked with said stepping pawl, and spring means for biasing said flint against said sparking wheel and for restoring said actuator and said stepping pawl to a normal position, the improvement wherein said spring means comprises a single spring with an intermediate portion secured to said actuator, a first extremity bearing upon said stepping pawl, and a second extremity bearing upon said flint whereby a reaction force is exerted upon said actuator through said second extremity and said intermediate portion.

2. The improvement defined in claim 1 wherein said actuator is pivotally mounted on said body at a fulcrum and is provided with a stud and a pin at locations re-
mote from said fulcrum, said stepping pawl being pivoted on said pin, said spring being wound with its intermediate portion on said stud.

3. In combination, the improvement defined in claim 1 and a gas-fueled burner on said body provided with a fuel valve, further comprising a lever on said body controlling said valve, said lever being engageable by said actuator to open said valve upon displacement of said actuator against said reaction force.