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## PATENT SPECIFICATION

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### COMPLETE SPECIFICATION

#### Improvements relating to Pyrophoric Lighters

We, LA NATIONALE, SOCIÉTÉ ANONYME, a Company organised under the laws of Switzerland, of 2, rue des Falaises, Geneva, Switzerland, 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:—

In a pyrophoric lighter, the wick cap, that is to say the member which ensures the fluidtight closure of the wick-carrying tube, is generally mounted, with or without freedom of movement, on a lever or in a pivoted cover subjected to the action of a spring adapted to hold this lever or cover in one or other of the extreme positions of use or even in both of these positions. The spring which is a blade or coiled spring, frequently has a position which is fixed relatively to the container of the lighter and its action is applied to a heel secured to the pivoted lever. The movement of this heel in front of the stationary spring therefore sets up friction and consequently wear, which latter is the greater the shorter and less flexible the spring. When it is desired simply to reduce the size of the spring or in a lighter with an automatic cover to ensure greater freedom of movement of the cover, it is always desirable to reduce the friction as much as possible.

The present invention relates to a telescopic rod, for actuating the cover of a lighter, said rod consisting of two sliding parts bearing against the opposite ends of a compression spring guiding the same, one of the parts resting on a fixed part of the lighter, whilst the other part hingedly engages with the cover to be actuated.

According to the present invention the rod is so placed that, when the cover moves from the open into the closed position and vice versa, the rod pivots on the fixed part of the lighter and oscillates from opposite sides of a dead centre at which the compression of the spring is at its maximum, in such a manner as to hold the cover in its two extreme positions.

Three forms of construction of the subject of the invention are shown diagrammatically by way of example in

the accompanying drawing, wherein:

Figs. 1, 2 and 3 are sectional elevations of these three forms of construction.

Referring to Fig. 1 the cover 10 of the lighter is hinged at 11 to the body 12 and itself carries the cap 13 for closing the wick-carrying tube 14, the cap 13 being subjected to the action of a spring 23.

The cover 10 is provided with an arm 15 on the end of which there is hinged at 22 a part 16 of a telescopic guide for a coiled spring 18, the other part 17 of this guide being provided at its end with a knife edge bearing against the wall of a seating 19 of the body 12 through the medium of a small member 20 resting on this wall. The spring surrounds the parts 16, 17 of its guide.

In the drawing the open position O of the cover has been shown in broken lines, together with the corresponding position of the spring 18. In this position the cover 10 bears against the body 12. As will be seen, for passing from the closed position F, indicated in full lines to the open position, the spring 18 with its guide 16, 17, oscillates from opposite sides of the dead centre position located along the plane S passing through the hinge 11 of the cover 10 and the end of the knife edge of the guide part 17. It will be seen that the arc traversed by the hinge 22 of the arm 15, from the plane S to the position F, is considerably larger than that traversed by the hinge from the plane S to the position O. It will also be seen that in the position F the spring 18 acts substantially tangentially on the arm 15, that is to say with the maximum force, which enables an absolutely fluidtight closure of the cap 13 on the wick-carrying tube 14 to be obtained.

In the form of construction shown in Fig. 2, the guide for the spring 18 is formed by a rod 24 hinged at 22 to the lever 15 of the cover, and by a small tube 25 which is rounded at its end 26 and engages with the corner formed between the wall of the body 12 and the fuel container. The rod 24 enters the spring 18, whilst the tube 25 surrounds the latter.

The operation is the same as in the

preceding example but by reason of its position in the body 12 the action of the spring is less advantageous in the position F than in the first form of construction.

- 5 In the form of construction shown in Fig. 3, the cover 10 carries an arm 27 to the end of which there is hinged at 22 a rod 28 constituting with a small tube 29 a telescopic guide for the coiled spring 18.
- 10 The rod 28 enters the spring 18 whilst the tube 29 surrounds the latter.

The tube 29 is provided at its end with a knife edge 30 resting in a corresponding seating 21 of the wick-carrying tube 14.

- 15 This form of construction operates in the same manner as the first with the maximum force of the spring 18 in the closing position F.

- 20 It will be understood that modifications may be made in the details of the devices described without departing from the scope of the invention. Thus for example in Fig. 2 the end of the tube 25 instead of being rounded may be provided with a
- 25 knife edge.

- The rod may also be formed by two tubular members sliding one within the other and containing the spring, these members being provided with rounded
- 30 ends or with a sharp edge.

- Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we
- 35 claim is:—

1. A telescopic rod, for actuating the cover of a lighter, said rod consisting of two sliding parts bearing against the opposite ends of a compression spring
- 40 guiding the same, one of the parts resting

on a fixed part of the lighter, whilst the other part hingedly engages with the cover to be actuated, characterised in that the rod is so placed that, when the cover moves from the open into the closed

45 position and vice versa, the rod pivots on the fixed part of the lighter and oscillates from opposite sides of a dead-centre at which the compression of the spring is at its maximum, in such a manner as to hold

50 the cover in its two extreme positions.

2. A rod according to claim 1, characterised in that the end thereof bearing against the fixed part of the body of the lighter has a knife edge.

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3. A rod according to claim 1, characterised in that the end thereof bearing against the fixed part of the body of the lighter is rounded.

4. A rod according to claim 1, characterised in that one of the parts thereof enters the spring whilst the other extends over the outside thereof.

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5. A rod according to claim 1, characterised in that the spring surrounds the

65 two parts.

6. A rod according to claim 1, characterised in that the spring is in the interior of the two parts forming a telescopic tube containing the spring.

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7. Telescopic rods for actuating the cover of a lighter, substantially as hereinbefore described with reference to the accompanying drawing.

Dated this 12th day of June, 1939.

For the Applicants,

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

Fig. 1

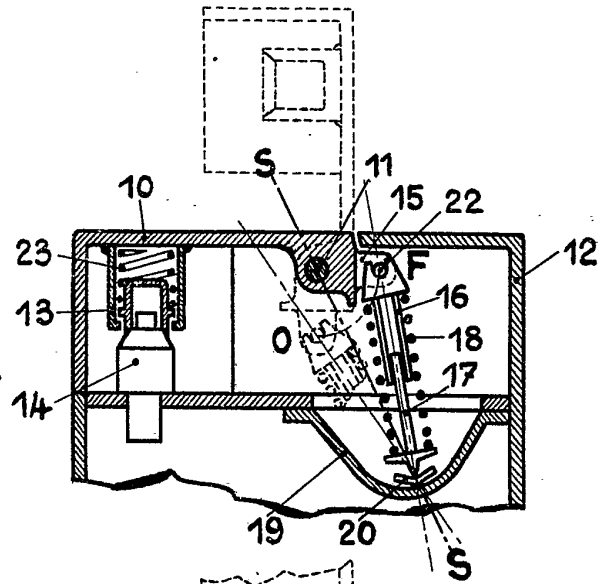


Fig. 2

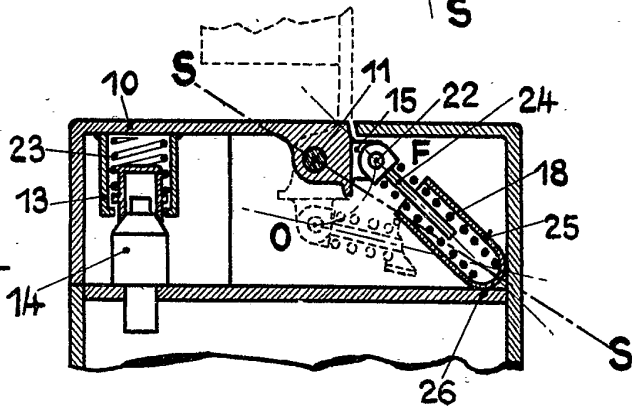


Fig. 3

