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PATENT SPECIFICATION



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COMPLETE SPECIFICATION

Improvements in Pyrophoric Lighters

We, HERMANN THORENS SOCIÉTÉ ANONYME, a body corporate organised under the laws of Switzerland, of Sainte-Croix, Canton of Vaud, 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:—

10 This invention relates to pyrophoric lighters of the type having a hingedly connected wick cap subjected to the action of a spring which tends to open the cap, a friction wheel actuated upon the opening movement of the wick cap and a rotatable bolt for said wick cap, which bolt is yieldingly maintained by the same spring in a position in which it prevents opening of the wick cap.

20 According to the invention said spring is carried by a disk loosely mounted on the axis of the friction wheel and provided with a driving pawl for actuating the friction wheel when the wick cap is opened.

25 The accompanying drawings represent by way of example a form of embodiment of the invention.

30 Figure 1 is an elevation of a pyrophoric lighter embodying the invention.

Fig. 2 is an elevation drawn to a larger scale and partly in section.

Fig. 3 is a section along the line III-III of Fig. 2.

35 Figs. 4, 5 and 6 show details of the spring assembly.

The represented lighter comprises a fuel reservoir 1 containing a wick 2. Two axes 4 and 5 are mounted between two lugs 3 carried on top of the fuel reservoir. The axis 4 carries the friction wheel 6 against which is applied a ferrocium stone, not shown. A wick cap 7 is also hinged on the axis 4 and is subjected to the action of a spring 8 tending to open the cap to disclose the wick. In its position of closure, the wick cap is locked by means of two projections 9 of a bolt 10 which is rotatably mounted on the axis 5. The spring 8 also acts on the bolt 10 and tends to hold it in the position shown in Fig. 2, in which the two projections 9 penetrate beneath the rear edge of the wick cap 7 and prevent its rotation about the axis 4. The bolt 10 carries a slide 11

movable along a guide slot provided in the bolt and carrying an extension 12 abutting against a stop 13 fixed on top of the fuel reservoir 1. A small spring 25 holds the slide in the position represented in Fig. 2.

When the slide 11 is pushed towards the left in Fig. 2, while at the same time a downward pressure is exerted on the bolt 10, the extension 12 abandons the stop 13, the bolt 10 turns in counterclockwise direction about the axis 5, and the two projections 9 release the wick cap 7 which, owing to the action of the spring 8, swings into open position and discloses the wick 2.

The spring 8 is shown in detail in Figs. 3 to 5. This spring comprises two spring arms 14 and 17 and a coiled portion formed of two concentric coils 15 and 16, the coil 16 being wound externally around the coil 15. The two arms 14 and 17 and the two coils 15 and 16 are all formed by a single spring wire, the two coils being wound in such manner that the two arms are disposed on the same side of the coiled portion of the spring. The spring arm 17 has a circularly curved end attached to the wick cap 7 by engaging a small groove provided between the muffler member 7a and the end 7b of the wick-cap 7.

A disk 18 is pierced with a central hole 19 and is provided, on either of its faces, with a hook 20 and 21, respectively, cut out from the periphery of the material of the disk. This disk is loosely mounted on the axis 4 of the friction wheel. It is further provided with a pawl 22 also cut out from the material of the disk and bent out of the plane of the disk. This disk is applied with its face presenting the hook 20 against that side of the coiled portion of the spring 8 on which are formed the two spring arms 14 and 17. The spring arm 17 is engaged in the hook 20 and the arm 14 is made to pass through the hole 19 of the disk and is then engaged in the hook 21.

The spring 8 is now attached to the disk and is under initial tension. The disk with the spring can now be easily mounted on the axis 4 which penetrates through the coiled portion of the spring. When afterwards mounting the bolt 10, 110

the spring arm 14 is engaged underneath the bolt and is disengaged from the hook 21 and further tensioned when the bolt is engaged on its axis 5.

5 When the bolt 10 is actuated, the wick cap 7 swings upwardly owing to the action of the spring arm 17 which, being engaged in the hook 20 of the disk, imparts a movement of rotation to this disk.
10 The pawl 22 of the disk coacts with ratchet teeth 23 provided on one side of the friction wheel and accordingly drives this wheel which produces lighting sparks.

15 The described structure of the lighter has the advantage that the spring 8 is carried by a distinct member, and owing to this arrangement it can be easily assembled or taken off. The fact that the carrier disk 18 also forms the driving pawl
20 for the friction wheel provides a substantial saving of space.

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

30 1. A pyrophoric lighter having a hingedly connected wick cap subjected to the action of a spring tending to open the cap, a friction wheel actuated upon opening of the wick cap, and a rotatable bolt yieldingly maintained by said spring in a position in which it prevents opening of
35 the wick cap, characterised by the feature

that said spring is carried by a disk loosely mounted on the axis of the friction wheel and provided with a driving pawl for actuating the friction wheel when the wick cap is opened. 40

2. A pyrophoric lighter as claimed in Claim 1, wherein the said spring presents two spring arms and a coiled portion disposed between the arms, characterised by the fact that the disk carrying the spring is provided with a central opening for the passage of the axis carrying the wick cap, the disk being disposed on one side of the coiled portion of the spring and being provided on either of its faces with a hook, one of the spring arms being engaged in one of the hooks and the other spring arm passing through said central hole and being adapted to abut against the other hook. 45 50 55

3. A pyrophoric lighter as claimed in Claim 2, wherein the disk carrying said spring is provided with a driving pawl cut out from the material of the disk and coacting with the friction wheel, while the two hooks for the spring arms are also cut out from the material of the disk. 60

4. The improved pyrophoric lighter, substantially as described and as illustrated in the accompanying drawings. 65

Dated the 8th day of March, 1937.

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

