PATENT SPECIFICATION

346,580

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Complete Left: April 26, 1930.

Complete Accepted: April 16, 1931.

PROVISIONAL SPECIFICATION.

Improvements in or relating to Pyrophoric Lighters.

We, WILLIAM HENRY HITCHCOCK, British Subject, of 24, Westbourne Square, London, W. 11, and GASTON BOBILLIER, Swiss Citizen, of 85, Hatton Garden, London, E.C. 1, do hereby declare the nature of this invention to be as follows:—

This invention is for improvements in or relating to pyrophoric lighters of the kind in which there is provided a wick extending from a wall of the casing of a fuel container, and an ignition device comprising a steel and a flint, and in which the steel is spring-urged, and is normally held in its cocked position against the action of the spring, by means of a catch mounted on the casing. By "steel" is meant the roughened steel element which forms one part of the ignition device, and by "flint" is meant the alloy of low melting point (e.g. iron-cerium alloy) which is the other element of the ignition device. By the expression "the steel is held in its cocked position" is meant that the steel element is restrained from being rubbed over the surface of the flint as it would be on being released from engagement with the catch.

According to the present invention, there is provided a pyrophoric lighter of the kind described wherein the steel (e.g. in the form of a wheel) is pivotally mounted co-axially with and rotatable with an arm which engages with the catch to retain the steel and the arm against rotation, and wherein a portion of the arm projecting beyond the pivot point or a similarly projecting part operatively connected with the arm is spring-loaded (e.g. by means of a helical spring connected to the arm and to a relatively fixed part such as the casing) in such manner as to rotate the steel and arm about the pivot when the arm is released.

In a preferred form the pyrophoric lighter according to the present invention has a spring-loaded part operatively connected with the arm, said part comprising a lever pivoted between its ends, with the spring loading applied to it on one side of the pivot, and on the other side of the pivot the lever has means to engage it directly or indirectly (e.g. through a pin extending therefrom) with the pivoted arm in order that the arm when released from the catch may be rotated by the spring-actuated lever.

In order that the invention may be more clearly understood one modification thereof will now be described.

The lighter comprises briefly a flat rectangular casing, with a wick extending from the top end wall of the casing which also acts as a fuel container. A tube extending between the end walls provides a passageway in which the flint is stored, the outlet at the top end wall is situated close to the wick. Two arms extending from the casing are provided with apertures through which a pin extends directly above the axis of the flint tube but at right angles thereto. A steel wheel with a roughened periphery is rotatably mounted on this pin. An arm coaxial with and rotatable with the steel wheel is also pivotally mounted on the pin. A lever loosely pivoted near its centre on this pin is connected to the casing on one side of the pivot by means of a helical spring which is always held in tension and which when the steel is held in its cocked position, extends at right angles to the arm through a tube passing to the opposite end wall of the casing.

On the other side of the pivot the lever is provided with a pin which passes beneath the arm so that the spring-urged arm will always tend to rotate the arm and the steel.

A spring-pressed catch mounted on the casing is capable of engaging the free end of the arm to hold the latter with the steel in a cocked position. On releasing the arm from the catch the arm will be swung outwardly from the casing so that the steel wheel will be rubbed over the surface of the flint. The arm is preferably provided with a cap which is adapted to fit over the wick when the steel is in the cocked or closed position.

The wick and the ignition device may if desired be protected by a perforated shield.

Dated this 22nd day of April, 1930.

BOULT, WADE & TENNANT,
111 & 112, Hatton Garden, London,
E.C. 1,
Chartered Patent Agents.

[Price 1/-]

COMPLETE SPECIFICATION.

Improvements in or relating to Pyrophoric Lighters.

We, WILLIAM HENRY HITCHCOCK, British Subject, of 24, Westbourne Square, London, W. 11, and GASTON BOBILLIER, a Swiss Citizen, of 85, Hatton Garden, London, E.C. 1, 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:—

This invention is for improvements in or relating to pyrophoric lighters of the kind in which there is provided a wick extending from a wall of the casing of a fuel container, and an ignition device comprising a steel and a flint, and in which the steel is spring-urged, and is normally held in its cocked position against the action of the spring, by means of a catch mounted on the casing. By "steel" is meant the roughened steel element which forms one part of the ignition device, and by "flint" is meant the pyrophoric alloy (e.g. iron-cerium alloy) which is the other element of the ignition device. By the expression "the steel is held in its cocked position" is meant that the steel element is restrained from being rubbed over the surface of the flint as it would be on being released from engagement with the catch.

According to the present invention there is provided a pyrophoric lighter of the kind described wherein the steel (for example in the form of a wheel is pivotally mounted coaxially with and rotatable with an arm pivoted near one end which arm engages with a catch to retain the steel and the arm against rotation, and wherein a portion of the arm projecting beyond the pivot point at the end opposite that which engages the catch, (or a similarly projecting part operatively connected with the arm) is spring loaded by means of a helical spring connected to the projecting portion or part and to a relatively fixed part such as the casing in such manner as to rotate the steel and arm about the pivot when the arm is released.

In a preferred form the pyrophoric lighter according to the present invention has a spring-loaded part operatively connected with the arm, said part comprising a lever pivoted between its ends, with the spring loading applied to it on one side of the pivot, and on the other side of the pivot the lever has means to engage it directly or indirectly (e.g. through a pin extending therefrom) with the pivoted arm in order that the arm when released from the catch may be rotated by the spring actuated lever.

In order that the invention may be more clearly understood two examples thereof will now be described with reference to the accompanying drawing in which

Figure 1 is a part sectional elevation of one form of a pyrophoric lighter according to the present invention showing the steel in its cocked position.

Figure 2 is a sectional elevation of the lighter shown in Figure 1 after the arm has been released from the catch.

Figure 3 shows a modified form of lighter according to the present invention.

Like reference numerals refer to like parts throughout the several figures of the drawing.

The lighter comprises briefly a flat rectangular casing 1, with a wick 2 extending from the top end wall 3 of the casing 1 which also acts as a fuel container. A tube 4 extending between the end walls provides a passageway in which the flint 5 is stored, the outlet at the top end wall is situated close to the wick 2. Two arms 6 extending from the casing are provided with apertures through which a pin 7 extends directly above the axis of the flint tube 4 but at right angles thereto. A steel wheel 8 with a roughened periphery is rotatably mounted on this pin 7. An arm 9 coaxial with and rotatable with the steel wheel 8 is also pivotally mounted on the pin 7. In the example shown in Figures 1 and 2 a lever 10 is loosely pivoted near its centre on this pin 7 and is connected to the casing 1 on one side of the pivot 7 by means of a helical spring 11 which is always held in tension and which when the steel is held in its cocked position extends at right angles to the arm 9 through a tube 12 passing to the opposite end wall of the casing.

On the other side of the pivot the lever is provided with a pin 13 which passes beneath the arm 9 so that the spring-urged arm 10 will always tend to rotate the arm 9 and the steel 8.

A spring-pressed catch 14 mounted on the casing is capable of engaging the free end of the arm 9 to hold the latter with the steel in a cocked position. On releasing the arm from the catch the arm

will be swung outwardly from the casing so that the steel wheel 8 will be rubbed over the surface of the flint 5. The arm is preferably provided with a cap 15 which is adapted to fit over the wick 2 when the steel is in the cocked or closed position.

The wick and the ignition device may if desired be protected by a perforated shield 16.

In the modification shown in Figure 3 instead of having a loosely pivoted lever such as the lever 10 shown in Figures 1 and 2, the arm 9 is provided with a projection 17 which extends beyond the pivot 7 and the steel 8. The end of the extension 17 is connected to the casing by means of the spring 11 as in Figures 1 and 2.

The catch 14 is of any known type of spring-urged catch and it is not considered necessary to describe the construction here.

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 claim is:—

1. A pyrophoric lighter of the kind described, wherein the steel (e.g. in the form of a wheel) is pivotally mounted coaxially with and rotatable with an arm pivoted near one end which arm engages with a catch to retain the steel and the arm against rotation, and wherein a portion of the arm projecting beyond the pivot point at the end opposite that which engages the catch (or a similarly projecting part operatively connected with the arm) is spring-loaded by means of a helical spring (such for example as 12) connected to the projecting portion or part and to a relatively fixed part (such as the casing) in such manner as to rotate the steel and arm about the pivot point when the arm is released.

2. A pyrophoric lighter according to claim 1, having a spring-loaded part operatively connected with the arm, said part comprising a lever pivoted between its ends with the spring loading applied to it on one side of the pivot and on the other side of the pivot the lever has means to engage it directly or indirectly (e.g. through a pin extending therefrom) with the pivoted arm for the purpose described.

3. A pyrophoric lighter according to claim 2 or claim 3 wherein the helical spring, in the cocked position of the steel, extending at right angles to the arm and housed in a tube extending into the casing of the fuel container, is arranged so that it is always in tension.

4. A pyrophoric lighter according to any one of the preceding claims wherein the pivoted arm is provided with a cap to fit over the wick when in the closed position.

5. A pyrophoric lighter according to claim 5 in which the cap is situated on the arm between its pivot and that part of it (e.g. an extremity thereof) which is engaged by the catch.

6. A pyrophoric lighter according to any one of the preceding claims wherein the arm is in the form of a rod having a bent over end to engage the catch.

7. A pyrophoric lighter according to any one of the preceding claims wherein the wick and the ignition device are protected by a perforated shield.

8. A pyrophoric lighter substantially as described with reference to Figures 1 and 2 or Figure 3 of the accompanying drawing.

Dated this 26th day of April, 1930.

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Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1931.

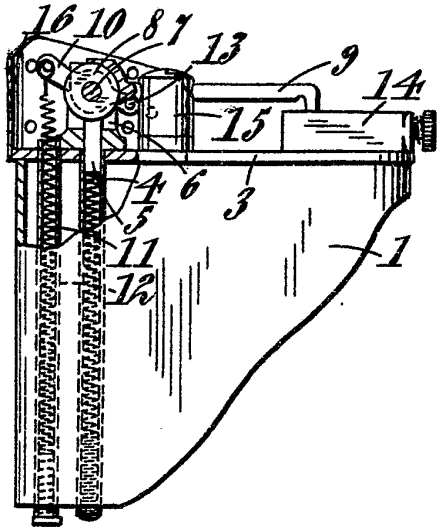

Fig. 1.

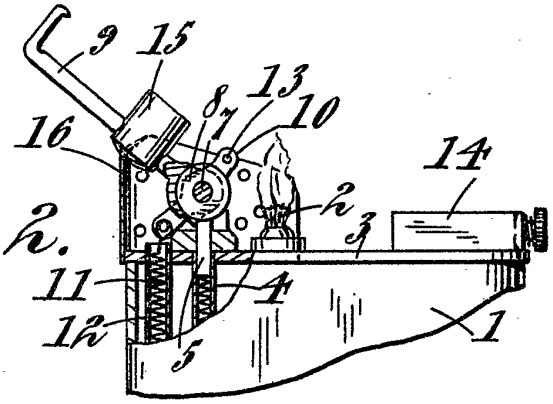

Fig. 2.

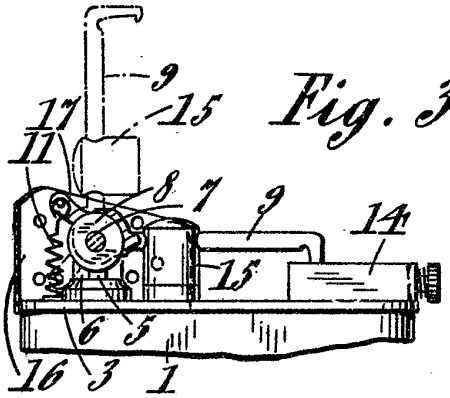

Fig. 3.

Charles & Read Ltd. Photo Litho.