PATENT SPECIFICATION

Application Date: April 25, 1932. No. 11,863/32. **402,110**

Complete Left: April 7, 1933.

Complete Accepted: Nov. 27, 1933.

PROVISIONAL SPECIFICATION.

Improvements in and relating to Pyrophoric Lighters.

We, ALFRED DUNHILL LIMITED, a British Company, of 137—143, High Street, Notting Hill Gate, London, W.11, and ERNEST ROBERT BENEY, a British Subject, of 3, Spenser Street, Westminster, London, S.W.1, do hereby declare the nature of this invention to be as follows:—

This invention relates to pyrophoric lighters of the type wherein a suitably charged wick is ignited by a spark produced by friction between an abrasive surface and a flint or other pyrophoric material.

According to the invention the lighter is so designed that the frictional resistance between the abrasive surface and the flint or pyrophoric material is overcome to produce a spark by gravity operated means such as a falling weight.

For example the lighter mechanism may comprise a flint or the like in contact with a movable abrasive surface, the latter being controlled by a spring which can be set by means of a catch or lock in such a position that on the release of the catch or lock the abrasive surface will move relatively to the flint and produce a spark.

Or the arrangement may be such that the flint or the like moves relatively to the abrasive surface.

In either case the release of the catch or lock is effected by means of a falling weight suitably mounted in or on the lighter. The weight may be arranged to fall when the lighter is tilted or turned through a desired angle.

In one suitable construction the lighter comprises a tube or casing carrying a fuel reservoir having a friction wheel in contact with the pyrophoric flint arranged thereon adjacent to a wick tube.

The friction wheel is rotatably mounted within a pivoted cover fitted with a pawl engaging the teeth or serrations of the wheel and also carrying an extinguisher which covers the wick tube when the device is set. The cover is linked to a rod slidably mounted in the casing and carried in suitable fixed guide members, the free end of the rod projecting through the lighter casing and having a push piece thereon. A coil spring is arranged around the rod with its ends abutting against the push piece and one of the fixed guide members respectively. The rod is formed with a cut out portion in which is mounted a flat spring catch so arranged that when the rod is moved through the fixed guide member to compress the coil spring the flat spring makes contact with the edge of the guide and acts as a catch holding the coil spring set. In this position the cover is moved over the friction wheel so that the extinguisher covers the wick.

The lighter is then set and if the coil spring is released the rod will raise the cover rotating the friction wheel to produce the desired spark. To release the coil spring a sliding weight is used. This weight is slidable on the rod preferably between guide bars which may be attached to the aforesaid fixed guides and its sliding movement is limited by the position of the fixed guides. The arrangement is such that when the coil spring is compressed and set the weight is at the limit of its travel farthest away from the flat spring catch. If the lighter is then inverted or turned through a suitable angle the weight will move along the rod releasing the flat spring catch and causing the rod to move to produce the spark.

It will be understood that the weight and the distance through which it falls are calculated to give the necessary force to release the spring catch.

If desired the fuel container and its attached parts including the rod with its fixed guides may be made as a unit adapted to be detachably secured in a suitable casing. For instance such a unit may be fitted into a casing in the form of a hunting horn the lighter being at the bell end of the horn and the push rod projecting through the mouthpiece. The lighter can then be set by pressing the push rod at the mouthpiece, when the horn will stand on its bell end with the lighter set. If the horn is then picked up and inverted the catch will be released and the light will be accessible at the bell end.

[*Price* 1/-]

Price 4s 6d

It will be obvious that many forms of lighter may be devised embodying the spirit of the invention above described.

Dated this 25th day of April, 1932.

ABEL & IMRAY,
30, Southampton Buildings, London, W.C.2,
Agents for the Applicants.

COMPLETE SPECIFICATION.

Improvements in and relating to Pyrophoric Lighters.

We, ALFRED DUNHILL LIMITED, a British Company, of 137—143, High Street, Notting Hill Gate, London, W.11, and ERNEST ROBERT BENEY, a British Subject, of 3, Spenser Street, Westminster, London, S.W.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 relates to pyrophoric lighters of the type wherein a suitably charged wick is ignited by a spark produced by friction between an abrasive surface and a flint or other pyrophoric material.

According to the invention the lighter comprises a flint or the like in contact with an abrasive surface mounted for relative movement, the said movement being controlled by a spring which can be set by means of a catch. A slidable weight is provided which when the lighter is suitably moved makes contact with the catch releasing the spring and causing relative movement between the flint and the abrasive surface producing a spark.

The weight may be arranged to fall when the lighter is tilted or turned through a desired angle or lifted as hereinafter described.

To enable the invention to be fully understood it will now be described by reference to the accompanying drawing in which:—

Fig. 1 is a sectional elevation of a lighter constructed according to one form of the invention, and

Fig. 2 is a plan view thereof.

Fig. 3 is a sectional view of a detail of a further form of the invention.

Referring to Figs. 1 and 2 the lighter is here shewn in the form of a hunting horn and comprises the outer tubular casing 4 having a bell end 5. The lighter proper is detachably fitted into the bell end 5 and comprises the closed fuel chamber 6 which is of a horse-shoe shape as can be seen from Fig. 2 and which carries a wick tube 7 and a flint tube 8 of usual construction. A friction wheel 9 attached to a cap 10 is pivotally mounted between a pair of brackets 11 screwed to the cover of the chamber 6. A filling opening closed by a screw plug 12 is also provided. The chamber is held in the bell mouth by a screw 13 which screws into a lug on the horn (not shewn). One end of the cap 10 acts as an extinguisher and covers the wick in the usual manner while the other end of the cap is pivotally attached by a link 14 to a slidable rod 15 which passes up through guide bushes 16, 16*a* to the mouth piece of the horn where it is attached to a press button 17 having a tubular part 18 which acts as a housing for a coil spring 19. One end of the spring 19 abuts against the button 17 the other end abutting against a collar 20 loose on the rod the collar resting on the bush 16*a*. A wire spring catch 21 is secured in a slot 22 in the rod as shewn and a weight 23 is slidably mounted on the rod.

The horn is intended to stand on its bell mouth as shewn in Fig. 1 and by depressing the button 17 the spring 19 is compressed, the catch 21 engaging the edge of the bush 16*a* as shewn and holding the spring set, the movement of the rod 15 also closing the cap 10 down on to the wick tube, the parts then being in the position shewn in Fig. 1.

If the horn is now lifted and inverted, the weight 23 will slide down the rod 15 and depress the catch 21, releasing the spring 19 and causing the rod 15 to move sharply out towards the mouthpiece. This action causes the cap 10 to be raised clear of the wick and at the same time the friction wheel 9 is rotated producing a spark which ignites the wick. The light is thus accessible at the bell end of the device.

After using the lighter it may be reset by depressing the button 17 until the catch 21 springs up in front of the bush 16*a* as shewn in Fig. 1. The lighter can then be stood upon its bell end ready for use.

It will be obvious that many forms of lighter may be devised embodying the spirit of the invention above described.

In Fig. 3 an arrangement is shewn wherein a lighter may be actuated by the action of a falling weight without the necessary of inverting it or turning it through an angle.

In this case, the same parts are used

as in Figs. 1 and 2 but the lighter is at the top and the spring 19 is arranged at the bottom of the device, the catch 21 being set by pushing the rod 15 in the direction of the arrow A. A light spring 24 is inserted between the sliding weight 23 and the bush 16*a* so that as shewn in the drawing, if the device is resting on its base the weight is prevented from coming into contact with the catch. The rod 15 passes through a suitable stop 25. To obtain a light the device is raised and given a slight upward shake which causes the weight 23 to move up into contact with the stop 25 and then to fall overcoming the spring 24 and releasing the catch 21.

The device may be reset by pressing it down on to a table for example. It will be obvious that the above described mechanism may be embodied in lighters of various designs.

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 type referred to comprising a flint or the like in contact with an abrasive surface mounted for relative movement, the said movement being controlled by a spring which can be set by means of a catch, a slidable weight being provided which when the lighter is suitably moved makes contact with the catch releasing the spring and causing relative movement between the flint and the abrasive surface producing a spark.

2. A pyrophoric lighter according to claim 1 wherein the catch and sliding weight are so arranged that the lighter must be inverted or turned through an angle to cause the weight to release the catch.

3. A pyrophoric lighter according to claim 1 wherein the catch and sliding weight are so arranged that the lighter must be lifted and given a slight upward shake to cause the weight to release the catch.

4. A pyrophoric lighter according to claim 1 wherein the cap of the lighter carries a friction wheel and is pivotally mounted, one end of the cap being linked to a rod, the latter carrying a sliding weight, a spring catch, a push button and a coil spring, suitable abutments for the coil spring being provided so that by pressing the rod the coil spring may be set and held by the catch.

5. A pyrophoric lighter according to claim 4 wherein a spring is inserted between the catch and the sliding weight so that the catch can only be released when the weight is given an upward movement and is then allowed to fall on to the spring with sufficient force to overcome its resistance and so make contact with the catch.

6. Pyrophoric lighters constructed substantially as hereinbefore described with reference to the accompanying drawing.

Dated this 7th day of April, 1933.

ABEL & IMRAY,
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Agents for the Applicants.

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

FIG. 1.

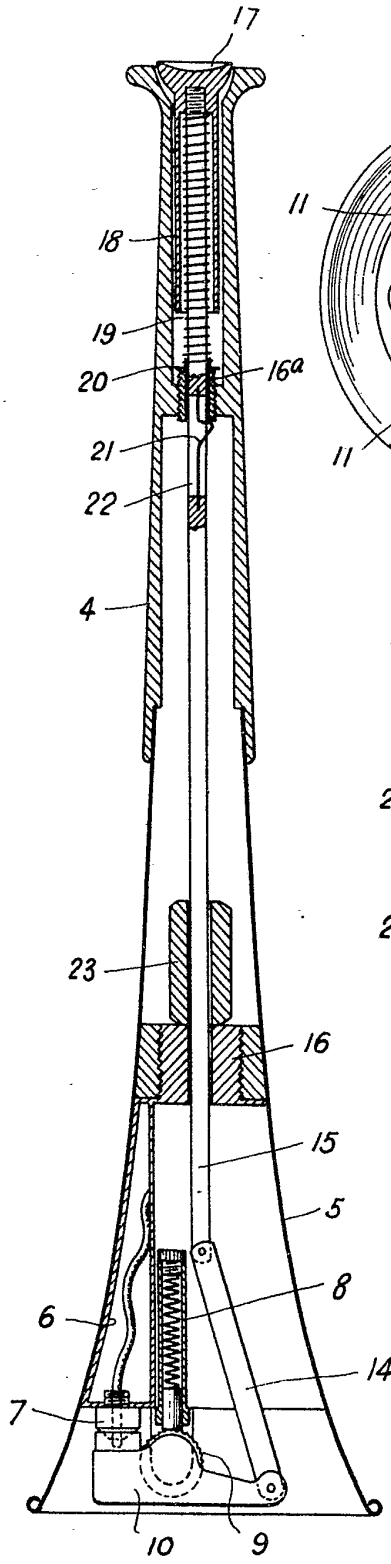


FIG. 2.

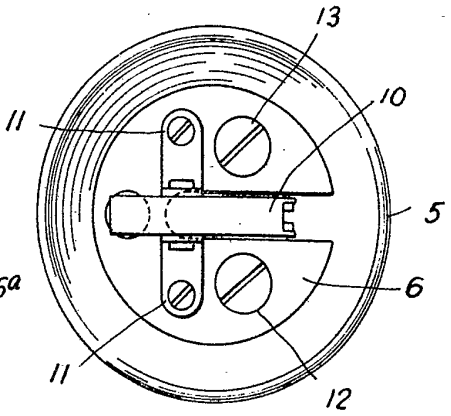
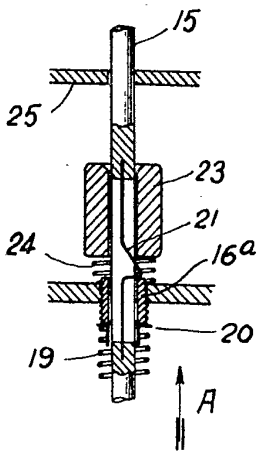


FIG. 3.



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