

PATENT SPECIFICATION



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PROVISIONAL SPECIFICATION

Improvements in Pyrophoric Lighters

I, ROGER JEAN MARCEL QUERCIA, of 4, Passage de la Reunion, Paris, France, French Citizen, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in pyrophoric lighters, especially so-called automatic lighters. The chief object of these improvements is to cause the lighter to function in an easier and more reliable manner, and also to ensure a close joint round the wick, thereby preventing the loss of spirit by evaporation.

With this object the present improvements consist in the method of putting into operation the spring-controlled rocking arm actuating the milled wheel. They also concern the mounting of the wick carrier, which makes a tight fit with the cap on the actuating arm when the latter is in the lowered position. Finally, they relate to the arrangements for mounting the ignition system, on the one hand, and on the other, the locking and release mechanism of the actuating arm, in partially cut away balls carried by the body of the lighter.

According to this invention the actual mechanism of the lighter, on the one hand, and the mechanism for locking and releasing the actuating arm on the other are housed in two cut-away members in the shape of balls, provided on the top surface of the body of the lighter.

The locking and release mechanism of the actuating arm is constituted by two members, housed in a transverse bore in the ball member and separated by a spring, and provided on the interior surfaces of said members are bevels adapted to grip the said arm, the application of a simultaneous pressure on said two members on both sides of the ball sufficing to release said lever and cause the lighter to function.

The two mobile members of the locking mechanism are maintained in position in their housing by means of a sheath forming a clasp, and of a retaining screw, so as to necessitate the application of simultaneous pressure on the two sides of the corresponding ball in order to open the lighter.

[Price 1/-]

The wick is mounted in a spring-controlled carrier having a flange adapted to make a tight fit with a corresponding seating provided in the cap carried by the actuating arm.

In one example of carrying the invention into effect and adapted to a lighter for use on a table, the lighter comprises a flat body forming a reservoir which contains in the usual manner the spongy material intended to store the spirit, and closed at the base as usual by two threaded plugs; one serving for the introduction of the spirit, and the other for the insertion of the flint and its pressure spring.

On one end of the top surface of the body is mounted a cut-away member in the form of a ball, which is channelled longitudinally and transversely by a shaft on which are idly mounted the milled wheel and the forked end of the actuating arm, the two branches of the fork embracing the wheel. A flat provided on the latter and facing the base of the fork enables the wheel to be drawn round by the arm. A spring bearing on the hand against interior bosses on the cut-away member and, on the other hand, against projections on the arm, tends to keep said arm in the raised position.

On the other end of the top surface of the body is another cut-away member, in the form of a ball, which is also slotted longitudinally and provided with a transverse axial bore. This bore houses two members each in the form of a U with unequal branches and relatively inverted, the shorter branches are next to each other and overlap one another. A spring is interposed between the two members, one end of the spring engaging in a recess in one member and the other end against a threaded plug screwed into the other member, and tends to urge the members outwards away from each other, the two shorter branches engaging with each other to limit the outward movement. These two shorter branches are provided with axial bevelled surfaces which, in converging under the action of the spring, grip and retain the suitably shaped end of the lever. An open sheath with bent

edges housed in the bore of the member and held in position by a locking screw, holds the members in rotational position, in such a way that their interior bevels
5 are always maintained in the correct position for gripping the end of the lever.

When the arm is lowered into the closed position and gripped by the bevels
10 of the members, the exertion of pressure, by two fingers on the said members will suffice to separate the bevels and thereby release the end of the lever, which, under the action of its spring will ascend
15 quickly and actuate the milled wheel which, by friction against the flint, will generate the sparks intended to ignite the wick of the lighter.

The snap device housed in the ball
20 offers the advantage of ensuring reliable locking owing to the necessity for exerting pressure on both sides of the ball at once—on both the members—in order to open the lighter. This is due to the
25 fact that the mobile members of said snap device are retained in the correct position by the sheath members and locking screw.

The wick is disposed in a carrier,
30 which—with interposition of a spring—fits

in a support screwed or otherwise fixed in the top surface of the body, for example by means of a small collar provided on said body. The upper rim of the carrier is provided with a chamfered
35 or bevelled flange, intended to make contact, when the arm is depressed, with a seating of corresponding shape, provided in the cap carried by said arm. In this manner, the spring ensures perfect contact
40 between the two bearing surfaces of the socket and of the cap, when the lighter is closed. This arrangement of the wick carrier ensures a tight joint round the wick, thereby preventing the evaporation
45 of spirit through the wick when the lighter is not in use.

The details of the improved lighter forming the subject of the invention described above given solely by way of
50 example of an embodiment of the invention, and are capable of numerous modifications. These various improvements are also applicable to pocket lighters.

Dated this 23rd day of December, 1935.

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COMPLETE SPECIFICATION

Improvements in Pyrophoric Lighters

55 I, ROGER JEAN MARCEL QUERCIA, of 4, Passage de la Reunion, Paris, France, French Citizen, do hereby declare the nature of this invention and in what manner the same is to be performed, to
60 be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in pyrophoric lighters, especially so-called automatic lighters of the kind in
65 which a milled wheel is actuated directly by a pivoted arm adapted to be swung upwardly by a spring on being released from a catch. The chief object of these improvements is to enable the arm to be
70 held in the locked position in a more reliable manner, in that it is necessary to press upon both sides of the catch means before the arm can be released.

According to this invention, the catch
75 is constructed of two members slidably housed in a member on the lighter, in such manner that both sliding members have to be pressed inwards to release the pivoted arm.

80 The invention will be clearly understood from the following description aided by the accompanying drawings in which:—

Figure 1 is a side elevation partly in section and broken away of one example
85 of carrying the invention into effect.

Figure 2 is a cross section on the line III, III of Figure 1 on an enlarged scale.

In one example of carrying the invention
90 into effect shown on the accompanying drawings and applied to a lighter for use on a table, the lighter comprises a flat body *a* forming a reservoir which contains, in the usual manner, the spongy
95 material intended to store the spirit, and closed at the base as usual by two threaded plugs; one plug *b* serving for the introduction of the spirit, and the other plug
100 *c* for the insertion of the flint and its pressure spring. On one end of the top surface of the body *a* is mounted a cut-away member *d* in the form of a ball, which is channelled longitudinally and
traversed by a shaft *e* on which are idly
105 mounted the milled wheel *f* and the forked end of the actuating arm *g*, the two branches of the fork embracing the wheel *f*. A flat provided on the latter and facing the base of the fork enables
110 the wheel *f* to be drawn round by the arm *g*. A spring *h* bearing on the one

hand against the solid portion d^1 of the cut-away member d and, on the other hand, against a projection i on the arm g , tends to keep said arm g in the raised position.

On the other end of the top surface of the body a is another cut-away member j , in the form of a ball, which is also slotted longitudinally and provided with a transverse axial bore (see Figure 2). This bore houses two members k and l of the catch device each in the form of a **U** with unequal branches and relatively inverted, the shorter branches k^1 , and l^1 are next to each other and overlap one another. A spring is interposed between the two members k , l , one end of the spring engaging in a recess in one member k and the other end against a threaded slug n screwed into the other member l , and tends to urge the members k , l , outwards away from each other, the two shorter branches k^1 , l^1 engaging with the pin of a locking screw q hereinafter referred to, to limit the outward movement.

The ends of these two shorter branches k^1 , l^1 project towards the outer cut-away member d and when held together by the action of the spring m form a nose which can engage over the end of the arm g , which is suitably shaped and formed on the underside with a wedge-shaped portion g^1 .

The inner faces of the projecting portions of the two shorter branches k^1 , l^1 are each formed with a bevelled surface o forming when the branches k^1 , l^1 are together a **V** on the upper side.

An open sheath p with bent edges housed in the bore of the member j and held in position by the locking screw q , holds the members k , l in non-rotatable position, the pin of the locking screw q also entering between the shorter branches k^1 , l^1 of the members k , l holds the members k , l centrally in the member j , so that the bevels o are always maintained in the correct position.

When the arm g is pressed down into the closed position (figure 1) the wedge shaped portion first engaging in between the bevels o forces apart the members k , l and branches k^1 , l^1 and passes through same, the members k , l close together under the action of the spring m for the branches k^1 , l^1 to engage over the end of the arm g to retain it in the closed position.

The exertion of pressure, by two fingers on the said members k , l will suffice to separate the members k , l and branches k^1 , l^1 and thereby release the end of the lever g , which, under the action of its spring h will ascend quickly and actuate

the milled wheel f which, by friction against the flint r , will generate the sparks intended to ignite the wick of the lighter. The catch device housed in the ball j offers the advantage of ensuring reliable locking owing to the necessity for exerting pressure on both sides of the ball at once—on both the members k , l —in order to open the lighter. This is due to the fact that the pin of the locking screw q projecting between the members k , l acts as a stop so that the mobile members k and l of said catch device are retained in the correct position by the sheath member p and locking screw q .

The wick s passes through a member v in the top wall of the body a of the lighter, and the arm g is provided with a wick-cap x which, when the arm g is pressed down, closes over the wick s .

The details of the improved lighter forming the subject of the invention described above, given solely by way of example of an embodiment of the invention, and are capable of numerous modifications. The invention is also applicable to pocket lighters.

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

1. In pyrophoric lighters of the kind in which a milled wheel is actuated directly by a pivoted arm adapted to be swung upwardly by a spring on being released from a catch, constructing the catch of two members slidably housed in a member on the lighter in such manner that both sliding members have to be pressed inwards to release the pivoted arm.

2. In pyrophoric lighters of the kind in which a milled wheel is actuated directly by a pivoted arm adapted to be swung unwardly by a spring on being released from a catch, constructing the catch device for the pivoted arm of two members slidably but non-rotatably housed in a transvers bore in a cut-away ball-shaped member on the lighter, and interlocked together, a spring normally urging the members outwardly with the interlocking parts in contact with a fixed stop pin, a bevelled surface on each upper part of the interlocking parts forming a **V** between the parts, and suitably shaping the end of the pivoted arm, whereby on pressing down the pivoted arm, its end engages in the **V** to force apart the interlocking parts of the two members, and after passing below same, the spring returns the members for the interlocking parts to engage above and retain the arm, and on the application of simultaneous

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pressure on said two members, on both sides of the ball, the interlocking parts of said members are forced apart to release said arm and allow the lighter to function, substantially as set forth.

5 3. In pyrophoric lighters as claimed in Claim 2, maintaining the two members of the catch device in position in their housing by means of a sheath and a retaining screw provided with the stop pin.

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4. A pyrophoric lighter constructed substantially as described with reference to the accompanying drawings.

Dated this 14th day of December, 1936.
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Fig. 1.

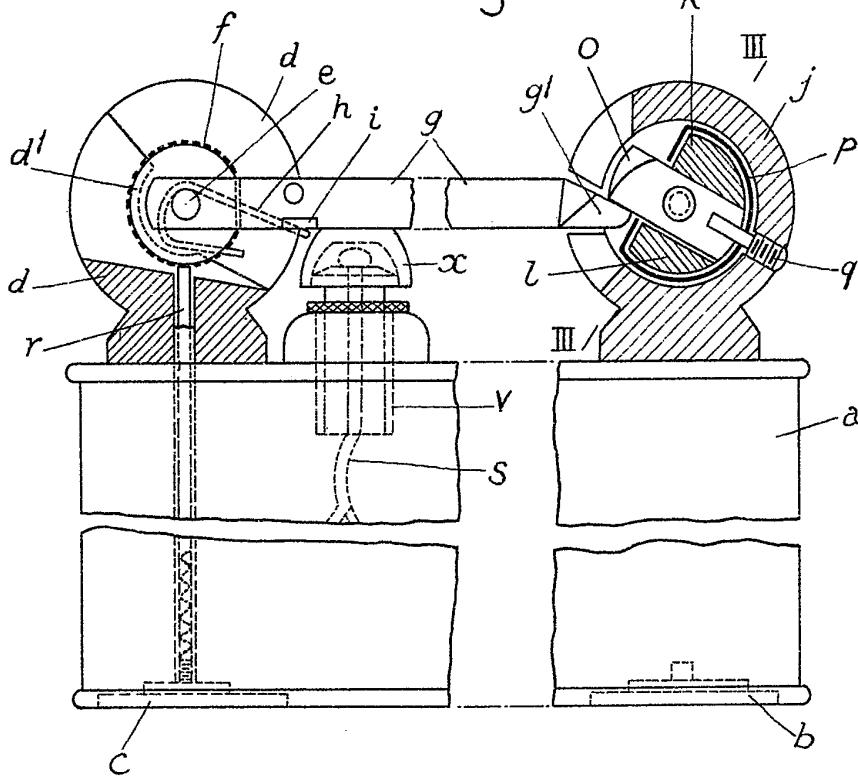
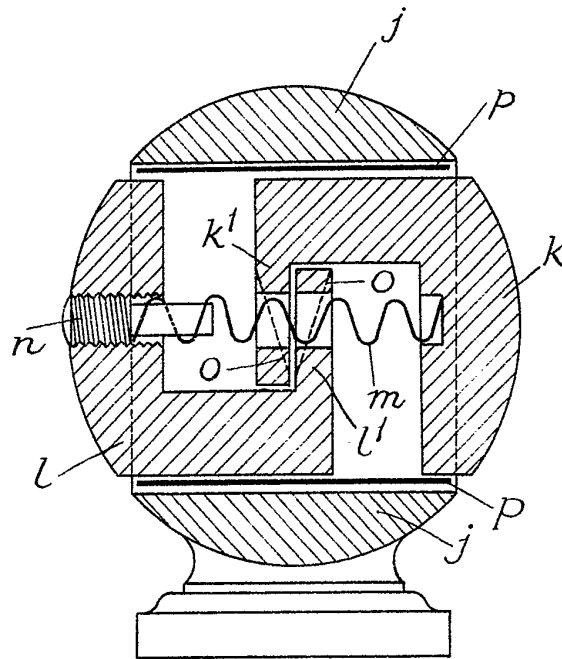


Fig. 2.



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