

PATENT SPECIFICATION



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311,975

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COMPLETE SPECIFICATION.

Improvements in Pyrophoric Lighters.

I, LEON FOREST DOUGLASS, a citizen of the United States of America, of Valpariaso Avenue, Menlo Park, California, United States of America, do hereby
5 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 The invention relates to pyrophoric lighters of the type embodying means for producing a flame.

15 An object of the invention is to arrange the wheel of a pyrophoric lighter so that the amount of pressure between the wheel and the flint may be varied during operation by the user.

20 Another object of the invention is to provide a pyrophoric lighter embodying improved means for closing the end of a wick tube, whereby the evaporation of the fuel used for producing a flame may be reduced to a minimum.

25 It has previously been proposed in a pyrophoric lighter to have a manually operable lid, adapted normally to seal the wick, and the friction wheel pivoted on a pin and connected together for simultaneous operation. A projection on the
30 lid formed a thumb grip and the flint was arranged at one side of the point vertically below the centre of the wheel so that sparks were projected upwardly towards the wick.

35 The invention consists in a pyrophoric lighter comprising a friction wheel and a member for supporting a pyrophoric body with its axis to one side of the centre of the wheel, in which the friction wheel
40 is loosely mounted on its bearing, so as to allow movement of the wheel towards the pyrophoric body, whereby the pressure between the wheel and pyrophoric body may be varied during operation by the
45 user.

In the accompanying drawings:

Figure 1 is a section view of a pyrophoric lighter, embodying my invention;

Figure 2 is a top view of the same; and

50 Figure 3 is an enlarged top plane view of the wick and wick tube.

Referring to the drawings, the numeral 1 represents a casing having a bottom 2

[Price 1/-]

and a top 3. Extending vertically through the inside of the casing from the
55 bottom 2 to the top 3, to which it is rigidly attached as by solder, is a tubular member 4, provided on its inside surface with suitable threads within which a disc
60 5 having its edges threaded may be screwed.

65 Secured to the top 3 are two separated projecting lugs 6, which are provided with suitable openings within which the ends of a pin 7 are suitably secured. Movably
70 mounted on the pin 7 between the lugs 6 is a friction wheel 8 which has a part of its circumferential edge roughened, the said wheel being mounted for pivotal
75 movement in a plane passing longitudinally through the central part of the casing. The opening 9 in the friction wheel 8 through which the pin 7 extends, is
larger in circumference than the circumference of the pin, thereby allowing the
80 said wheel to move slightly either toward or away from the top edge of the tubular member 4.

85 Located inside the tubular member 4 adjacent the disc 5 is a spiral wire spring 10, the lower end of which rests against the disc 5 and the upper end of which projects against a pyrophoric body 11, one
end of which body projects above the end of the tubular member 4 and contacts with
90 the roughened segment of the friction wheel 8.

95 The tubular member is so located with reference to the center of the friction wheel that its upwardly projecting end is positioned to one side of a line passing vertically through the center of the friction wheel. The said end of the tubular
100 member is cut away in an inclined direction so as to permit the rotary movement of the friction wheel without any contact being made with the tubular member. The end of the tubular member being located
105 to one side of and above the lowest tangential point on the friction wheel, enables the said wheel to contact with a greater portion of the pyrophoric body 11 than would be possible were the pyrophoric body positioned directly beneath the center of the said wheel, thereby enabling a
larger spark to be thrown from the said body.

Removably located inside the tubular member 4 and extending upwardly therein is a manipulating rod 12, the bottom end thereof being provided with an enlarged finger piece 13, and the upper end being provided with pronged parts 14 which may contact with the sides of the tubular member and which are adapted to grasp the disc 5 when the finger piece 13 is turned. The disc 5 may be screwed upwardly or downwardly inside the tubular member in such a manner as to cause the spring 10 to press more or less firmly against the pyrophoric body 11, thereby regulating the proper degree of contact of the said body with the roughened part of the friction wheel 8.

Integral with the top 3 at a point adjacent the projecting end of the pyrophoric body 11 is a wick tube 15 which carries a wick 16. The wick 16 projects into the casing from a point above the said wick tube, and is adapted to deliver sufficient fuel for the producing of a flame. Extending around the wick tube 15 is a split ring 17 which has its outer edge beveled, the said ring being retained on the said tube by an outwardly projecting circular flange 18 located at the top edge of the said tube.

The top part of the friction wheel 8 is provided with oppositely disposed finger pieces 19 and 20, the latter being secured to a closing cap 21 which is adapted to enclose the end of the wick 16. The part of the inside surface of the closing cap located adjacent its lower edge is of sufficient size to firmly fit around and against the beveled edge of the split ring 17, which constitutes spring means cooperating with the cap 21 to provide a sealed enclosure for the wick. When the closing cap is normally positioned over the end of the wick 16, the contacting surface of the said cap contracts the ring 17, thereby providing an air tight connection which prevents the unnecessary evaporation of the liquid fuel delivered to the end of the said wick.

Removably screwed into a suitable opening in the bottom 2 is a cap 22, which upon its removal permits the insertion of liquid fuel such as benzine into the casing for the production of a flame at the end of the wick 16. The fact that the pyrophoric body 11 is in close proximity to the end of the wick 16, together with the fact that the said body contacts with the roughened segment of the friction wheel at a point best adapted for the throwing of a spark directly onto the end of the wick, enables the latter to become ignited with the utmost satisfaction and without the unnecessary manipulation of the said friction wheel.

To produce a spark for the ignition of the wick 16, the finger piece 19 is pressed downwardly, thereby turning the friction wheel 8 on its pivot 7 so that the roughened segment of the said wheel is made to rub against the pyrophoric body 11 and make a spark which ignites the said wick. By this operation the finger piece 20 and the closing cap 21 are moved upwardly to uncover the wick, thereby enabling the spark to be thrown toward and against the said wick. By pressing the finger piece 20 downwardly, the wick may be again enclosed, and the contact of the pyrophoric body with the roughened segment of the friction wheel then maintains the closing cap over the wick until the finger piece 19 is again manipulated.

The inside of the casing is ordinarily filled with absorbent cotton which absorbs the liquid fuel inserted through the opening in the bottom of the said casing.

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. A pyrophoric lighter comprising a friction wheel and a member for supporting a pyrophoric body with its axis to one side of the centre of the wheel, in which the friction wheel is loosely mounted on its bearing, so as to allow movement of the wheel towards the pyrophoric body, whereby the pressure between the wheel and pyrophoric body may be varied during operation by the user.
2. A pyrophoric lighter of the type described and as claimed in Claim 1, wherein spring means are provided cooperating with a cap to form a sealed enclosure for the flame producing means.
3. A pyrophoric lighter substantially as described or as illustrated with reference to the accompanying drawing.

Dated this 29th day of June, 1928.

MARKS & CLERK.

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

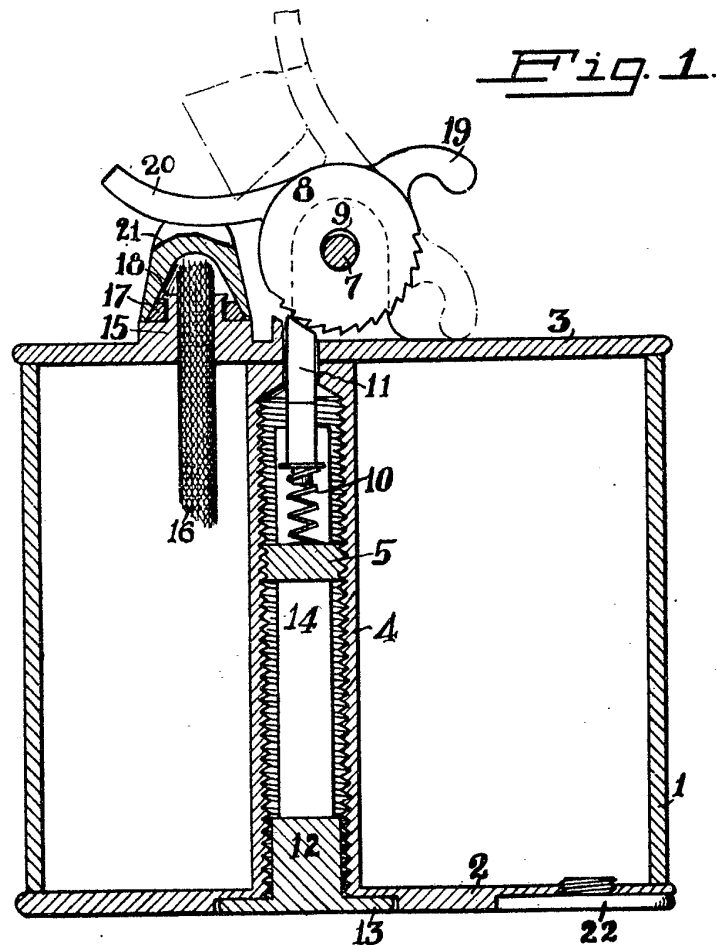


Fig. 2.

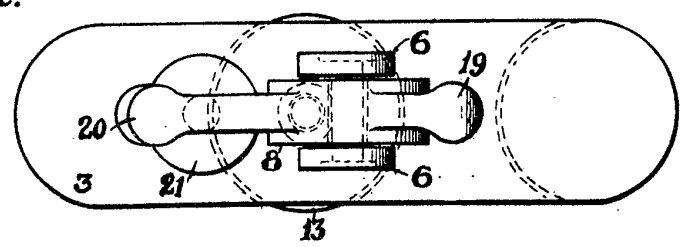


Fig. 3.

