

AMENDED SPECIFICATION

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PATENT SPECIFICATION



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563,954

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COMPLETE SPECIFICATION

Improvement in or relating to Lighters for Cigars, Cigarettes and like uses

I, ALEXANDER SYDNEY WESTON, of 85, East 10th Street, New York, State of New York, United States of America, a Citizen of the United States of America, 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 lighters for cigars, cigarettes and for similar uses, of the type comprising a tubular casing housing the wick and operating mechanism and provided with a cap containing a reservoir for spare flints closed by a screw cap, and has for its main object to provide a lighter of a novel improved construction, which will be more efficient than the lighters now in use.

20 Another important object of this invention is to provide a lighter in which convenient means are provided to carry a reserve stock of spark producing flints within the lighter.

25 According to this invention, we therefore provide a pyrophoric lighter comprising a plurality of sections, one of which is a tubular casing, said casing housing the operating mechanism of the lighter, said mechanism including a spark producing flint, and a container for reserve flints, open at one end, the bottom of said container being secured to the bottom of the cap portion of the lighter, which is countersunk to form a socket, and a removable closure member for the open end of the container.

Means are provided also to prevent or retard the loss of combustion mixture, or liquid vapors, and to feed oxygen to the flame and to prevent an easy extinguishing thereof, thereby making my novel lighter practically wind and storm proof.

Other objects of this invention will be

apparent as the specification of the same proceeds, and among others I may mention: to provide a device of the character indicated hereinbefore, which, with all the improvements, still will be inexpensive to manufacture, low in price, which will have a novel shape and design, attractive and æsthetic in appearance, and still specifically adapted for the objects of my invention, and which will have an ornamental top serving at the same time as a magazine for the spare flints.

In the drawings forming a part of this specification and accompanying the same,

Fig. 1 is a side elevation of a preferred construction of my novel lighter in a closed position, and

Fig. 2 is a top view thereof;

Fig. 3 is a sectional elevational view of the assembled lighter in a closed position and on a much larger scale than the earlier figures;

Fig. 4 is a partly sectional side elevation of the central portion or main body of the lighter with the bottom cap attached thereto;

Fig. 5 is a fragmentary sectional detail of the upper end of the tube containing the flint and spark wheel;

Figs. 6 and 7 are cross sectional plan views on the lines 6—6 of Fig. 4, and 7—7 of Fig. 3, respectively, and

Fig. 8 is a fragmentary side elevation of the upper portion of the middle or central section of the housing of my lighter indicating the three apertures provided therein.

Referring now to the drawings more in detail by characters of reference, my assembled lighter is indicated, in general, by the numeral 10, and is composed of three main parts or sections, being a middle or main section, generally indi-

[Price 1/-]

cated by the numeral 11, a top or upper cap section, generally indicated by the numeral 12, and a lower or bottom cap section, generally being indicated by the numeral 13.

The middle or main section 11 is arranged in a tubular casing 14 having a closed bottom 15 and an open top 16 and preferably being made of some appropriate thin sheet metal material. The upper or top section 12 also has a cylindrical hollow body 16a, open at the bottom 17 and closed at the top 18, its inner diameter being such that it may snugly slide over the main body section 11. The bottom cap section 13 also comprises a hollow cylinder 19, open at the top, as at 20, having a closed bottom 21 and being substantially of identical diameter to the top section adapted to slide over the middle section 11, as indicated in Figs. 3 and 4.

A narrow tube 22, hereafter called the "flint tube," is arranged adjacent to the wall of the central section 11, and from the upper end of the flint tube, an ear or tongue 23 is struck out, while a corresponding slot or aperture 24 is provided in the wall of the middle section 11, said ear or tongue 23 being bent outwardly, passed through said slot 24 and then bent over the wall of the section 11 in a downward direction, thereby securing the flint tube 22 in its position.

An indentation 25 may be provided in the wall of the section 11, whereby the downward bent portion of the ear or tongue 23 may be flush with the rest of the cylindrical housing 14.

To further secure the flint tube in the middle section 11, the lower end 26 of the tube is passed through a circular opening in the bottom 15 of said section and is bent or riveted down over the edge of said opening. To insure a better sealing of the tube in said aperture in the bottom 15, I preferably pour a small amount of solder in a hot liquid condition over the bottom 15 within the middle section 11 when assembling my device, said solder upon cooling forming a thin layer 27 thereover tightly sealing the flint tube 22 within said bottom.

At the upper end of the flint tube, two identical oppositely placed projections 28 and 29 are provided, having the rotatable knurled spark producing wheel 30 arranged between them on a shaft 31. The lower portion 32 of the flint tube 22 is screw threaded and a regulating and adjusting screw 32 is arranged therein. A helical spring 34 is placed over said screw and the spark producing flint 35 is pressed by said spring against the spark wheel 30, as it is well known in this art.

A comparatively heavy layer of wick fabric 36 is arranged around the circumference of the cylindrical housing 14 of the middle portion, its ends 36a and 36b being spaced apart to leave room for the flint tube 22. A cylindrical hollow space 37 is thus produced within the wick 36 and the lower portion thereof is filled with an appropriate material 38, like cotton, said material being the carrier of the combustion vapor producing liquid, like gasoline, ether, or some appropriate specific composition, used in this art for such purpose, a small quantity of said liquid being dropped over and on the cotton 38 and being absorbed thereby when filling the lighter.

A comparatively large hole 39 is provided near the upper end of the middle portion through the wall thereof and through the wick lining 36, and two smaller holes 41 are provided in said wall opposite to said large hole 39 and preferably equi-distantly placed from the diameter passing through the large hole 39. The bottom cap portion 13 of my device may have an absorbent lining 42 arranged over its bottom, said lining preferably being formed of a plurality of thin layers of textile material, like cotton, tightly pressed one over the other.

An outwardly curved bead 43 is formed in the wall 14 of the middle section to provide an upper limit for the sliding of the bottom section 13 thereover, and, similarly, a lower limit for the downward sliding of the top section 12.

The closed top 18 of the top section is bent inwardly in a counter-sunk manner to provide a cylindrical socket 44 with a closed bottom 45. A hollow sheet metal body 46, which I prefer to call the magazine for the reserve flints, is placed into said socket 44 with its cylindrical bottom portion 47, while its upper portion 48 projects over the closed top 18 of the device, and screw threads are pressed into its wall. A spherical body 49 is provided to close the open upper end of the portion 48 of the flint magazine, said ball or sphere 49 having a bore or socket 50, the lower portion 51 of which is similarly screw threaded as the portion 48 of the flint magazine. In this manner, ball 49 may be closed down upon said magazine by their co-operating screw threads and in the manner indicated in Fig. 3.

A plurality of reserve flints 35 are arranged in the magazine 47, and, preferably, I also employ a cork stopper 52 in the open upper screw threaded part 48 thereof for better sealing and to prevent an unnecessary rattling of the flints 35.

The reserve flint magazine or container 47 may be secured within the counter-

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sunk socket 44 of the top 18 of the device by a rivet 53. A lining 54, identical in character to the lining 42 of the bottom cap 13, may be provided for the upper cap 12.

The use and operation of my lighter will be obvious from the drawings and the herein description.

Normally the device is in a closed position, as indicated in Fig. 3.

When it is desired to use it, the upper cap 12 will be pulled off the middle section 11, using the ball shaped head 49 as a grip for this operation, and the spark wheel quickly rotated in the direction of arrow 55, producing a succession of sparks from the upper end of the flint 35. The combustible liquid will rise in the wick lining 36 by capillary action and will evaporate from the open upper end 57 of said wick, and the flame will be produced by the sparks igniting the vapors of the liquid around the upper end of the wick 36, as it is well known.

A draft of air will be produced by the action of the large hole 39, and the opposite two small holes 41, feeding oxygen to the flame, so that the flame will not be extinguished even in a strong wind or storm. When it is desired to extinguish the device, the upper cap 12 will be pushed over the middle portion 11.

When the flint 35, operating in the device, is worn off, the same may be pressed again to a desired degree against the wheel 30 by the regulating screw 33, and when it is used up, the same may be replaced by another one from the reserve magazine of flints. In this manner I provide a device which may carry the reserve flints in its own construction, whereby the same may be used for a long time.

As has been mentioned, it also is my experience that the flame will be more resisting against wind and storm than in any of the similar devices used at present.

Finally, it has been my experience that the combustible liquid in my device will last much longer than in the other lighters of similar construction at present in use, which I attribute to the sealing layer 27 in the bottom of the middle section.

This result may also be aided by the lining 54, which may absorb and condense the vapors from the wick and the liquid saturated cotton in my device, which vapors in similar lighters now in use will slowly seep out of the closed lighter or are freed when the upper cap is removed preparatory to using the lighter.

Lining 42 in the bottom cap 13 is for a similar purpose, but it is mainly inten-

ded to be used when no sealing layer 27 is provided in the bottom 15 of the central or main section 11 of the lighter, and when fuel vapours may better escape around the bottom of the flint tube 22 and then from the vacant space in the bottom cap 19.

In Fig. 4, the numerals 12a and 13a indicate elongated outwardly projecting indentations in the wall of the middle section 11, whereby the frictional engagement between said section and the upper cap 12 and lower cap 13, respectively, will be increased, as it is well known in this art.

The provision of the inlets 39, 41 for supplying air to the wick flame forms the subject of divisional application 15950/44 (Serial Number 564,919), and the provision of the absorbent linings 42, 54 for the caps 13, 12 forms the subject of divisional application 15951/44 (Serial No. 564,920). No claim to these features *per se* is made in this specification.

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 plurality of sections one of which is a tubular casing, said casing housing the operating mechanism of the lighter, said mechanism including a spark-producing flint, and a container for reserve flints, open at one end, the bottom of said container being secured to the bottom of the cap portion of the lighter, and a removable closure member for the open end of the container.

2. A pyrophoric lighter according to Claim 1, wherein the bottom of the cap portion of the lighter to which the bottom of the container is secured is counter-sunk to form a socket, and a portion of said container fitting into said socket.

3. A pyrophoric lighter according to Claim 1 or Claim 2, further characterised in that the container is provided with a screw threaded cylindrical extension or neck at its open end, and said closure member has a screw threaded bore whereby to secure the same on said extension.

4. A pyrophoric lighter according to Claim 1, Claim 2 or Claim 3, further characterised in that the casing is provided with a removable tubular cap, and said container is secured on the bottom of a socket portion of the said cap, said closure member for said container being adapted to be used as a grip for removing said cap.

5. A pyrophoric lighter, according to Claim 4, in which the closure member is globe shaped to provide an ornament for

the end of the cap and a better grip for removing the same.

6. A pyrophoric lighter comprising an elongated hollow casing for the operating parts thereof, a removable closure cap over the open upper end of said casing, a flint spark-producing device in said casing, a counter-sunk portion of the bottom of said cap, a hollow body in said counter-sunk portion adapted to be used as a container for reserve flints, a cylindrical upper portion for said hollow body projecting over said cap, screw threads pressed into the wall of said cylindrical portion, and a closure ball having a screw threaded recess therein whereby to

be threaded over said cylindrical portion and normally to serve as a closure for the same and as a grip for pulling off said cap from said casing when it is desired to use the lighter, said ball being adapted to be unscrewed from said cylindrical portion when it is desired to open said container for the reserve flints. 20

7. The pyrophoric lighter, substantially as described and as shown in the appended drawings. 25

Dated this 27th day of February, 1943.

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2, Belvidere, Weymouth, Dorset.

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

