

PATENT SPECIFICATION

569,277



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COMPLETE SPECIFICATION

Full Opening Lighter

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:—

5 This invention relates to lighters for cigars, cigarettes and pipes, and it has for its main object to provide a device of this description of the type comprising an arm pivoted on the top of the lighter carrying a covering and protecting cap and a flame-extinguishing member, which normally are held in the inoperative or closed position but are adapted to readily swing out of this position to permit the production of a flame. The invention has for its object to provide a lighter of this type the flame-extinguishing member thereof being adapted to be opened more conveniently and more widely than with lighters used heretofore, so that the flame produced may more conveniently be applied to a cigar, or cigarette, and particularly to a pipe.

10 Another object of the invention is to provide a lighter of the type referred to, which will be convenient and quick to operate, to fully open, to light or to close and put into the closed inoperative position with one hand, which will be reliable in operation and will be quite inexpensive to manufacture, easy and quick to assemble and will have high class wearing qualities and be durable in use.

15 According to my invention, I provide a lighter of the type referred to, comprising a casing, a top for said casing through which a wick-end protrudes to produce a flame thereon when desired, a covering and protecting cap and a flame-extinguishing tube on an arm, which arm is pivoted at one end and is substantially parallel to the said top in the inoperative or closed position, a curved flat spring underneath said arm, the free end of which spring is adapted to exert an upward pressure against the pivoted end of said arm, and two flat faces on said pivoted end adapted to maintain the said arm into two different positions, operative and inoperative

respectively, under pressure of said spring, characterised in that the dihedral angle between the said faces is substantially acute, the two faces constituting a projection on the said pivoted end of the arm, the remaining portion of said pivoted end being rounded so as to slide easily over the free end of said spring, thereby enabling said arm to swing further outwardly to a fully open position substantially at 180° from its original closed or inoperative position, the friction of the spring on said rounded portion then having a tendency to keep said arm in said fully open position, but permitting the arm to turn easily in the reverse direction under the action of an external force acting on said arm to close same.

Referring to the drawings appended hereto, which illustrate a preferred construction of the lighter according to this invention:—

Fig. 1 is a front elevation;

Fig. 2 is a rear elevation;

Fig. 3 is a plan;

These three Figs. show the device fully assembled and in a closed inoperative position.

Fig. 4 is a sectional elevation, showing the device in a partly open position;

Fig. 5 and Fig. 6 are front and plan views, respectively, of the arm stud;

Fig. 7 and Fig. 8 are a plan and a side elevation, respectively, of the closing and opening arm.

In the drawings, 20 is the main housing, preferably made of sheet metal and having an elongated flat oval shape shown in the drawings. An upper cap or cover is secured on top of the housing and a lower cap or bottom 22 is secured at the other end by any appropriate means, as by having the respective flanges 21a and 22a thereof soldered on the housing.

As is well known in this art, the housing 20 is adapted to be filled with a cotton or other absorbent material 23 which is charged with the flame-producing fluid, e.g. benzine or petrol, and a wick 24 is placed into said housing, among the cotton, so as to conduct the said fuel by capillary action upwardly to the flame-producing end 24a of said wick, protrud-

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ing through a small tube 25 in the cover 21.

The bottom is provided with an inwardly threaded tubular member 26, into which screws a stopper 27, so that the housing may be replenished or filled with the liquid fuel by means of said tube 26 when the stopper 27 is removed.

A spark tube 28 is secured by means of a bracket 32 on the cover 21, in which tube is placed a helical spring (not shown) adapted to press a flint or other spark-producing material 35 against the knurled wheel 34, the pressure of said spring being adjusted by the screw 37, in the known manner.

A swinging arm 42 is rotatably pivoted on the pin 43 mounted transversely of the top portion of the arm stud 44; it carries at its free end a head constituted by a member transverse to the axis of the pin and presenting two projections 54 and 55 along which a covering and protective cap 38 is secured from the edge of its top to the edge of its outer larger portion 39. By this arrangement a relatively large portion of the parts 38 and 39 of the cap is supported by the head, and strengthened thereby.

This protective and covering cap 38 and its outer larger portion 39, which latter extends diagonally, close both over the flame-producing end 24a and over the spark wheel 34, a portion of the wall 40 of the cap being cut out to enable the cap to fit over and avoid the spark tube 28. The cap 38 carries an inner tube 41, hereafter referred to as the extinguishing tube, adapted to close on and extinguish the flame at the end of the wick end 24a. This flame-extinguishing tube 41 is carried by a disc 56, integral with the head on the free end of the arm 42, in parallelism with the pivot (Figs. 7 and 8), the cap 38, the disc 56 and the tube 41 being secured together by means of a rivet or pin 41a (Fig. 3) passing through a hole 57 in the disc and a hole in the cap and in the top of the tube, as shown in Figs. 4, 7 and 8. A slot, provided in the wall of the cap allows the neck 56a of the disc to pass through the said wall.

A curved flat arm-locking spring 45 is secured at its end 46 on the cover 21; its other end engages a flat 48 on a projection 49 at the pivoted end of the arm 42 when said arm is in the closed position. Said spring, by its pressure on the flat 48, tends to maintain the arm 42 in the closed position shown in Figs. 2. and 3 and to counteract the opening of said arm until the said flat 48 of said projection leaves the end 47 of the spring, this taking place when the arm 42 arrives into a substantially vertical position indicated by the

dot-and-dash line 42a, Fig. 4.

Upon a further turning of said arm in a right hand direction, the pressure of the spring makes itself felt on the second flat face 48a of the projection 49, and the arm further opens to a practically horizontal position shown approximately by the dot-and-dash line 42b, Fig. 4. The heel end of the projection 49, that is, the portion 51 (Fig. 8) of the end of the arm 42 opposite to that projection, is rounded, so as to allow the end 47 of the spring to slide over it and permit the arm 42 to rotate right to the end of its 180° swing should it be so desired, by the application of a slight external force.

The arm stud 44 is made by a novel construction, being formed of a sheet of metal folded so as to form a curved portion 44a, the two sides 44b ending in rounded upper portions 44c in which are the holes 44d for the pivot pin 43 of the arm 42. The sides 44b may have downwardly projecting ears 44e which fit into appropriate openings provided in the top or cover 21, the arm stud being then secured by rivetting said projections or ears 44e or by soldering or by any other suitable method. The bent portion 44a provides a stop for the arm 42 in its fully open position.

In the preferred construction, the arm 42 is made of one piece of material, preferably stamped out of sheet metal, provided at the end thereof adjacent to the projection 49 with a hole 53 for the pin constituting the pivot.

The use and operation of my device will be obvious from the above description, and is very similar to those of many lighters now in use. The main difference between my lighter and other lighters of similar type being the improvements in elements, construction and details, combinations of such details and improved operation in my device, superior to theirs.

When it is desired to use my device, the same may be operated with one hand: it is grasped between the forefinger, middle finger and thumb of, let us suppose, the right hand of the user, the thumb resting for the time being against the right hand end 20a of the housing 20, the fore and middle fingers resting against the left hand end 20b of said housing. Thereupon the thumb will engage the lower end of the cap 38 and will swing this cap and arm 42 upwardly against the pressure of the spring 45, as shown by the arrow 52 (Fig. 2), until the free end of the spring 45 passes from the face 48 of the projection 49 on to its face 48a and the pressure of the spring on the latter causes the arm to swing further round towards its horizontal position, as shown in Fig. 4. In the last stage of this movement, the

housing 20 again may be caught by the thumb and the arm moved to its fully open position by the aid of the forefinger. The device being so open, the thumb may engage the spark wheel 34, rotate it and produce the spark lighting the wick-end 24a.

When it is desired to extinguish the flame and close the lighter, the forefinger engages the rear of the arm 42 and cap 38 and move the arm forwardly and downwardly in an opposite direction to that indicated by the arrow 50 until the tube 41 closes on the wick-end 24a and extinguishes the flame.

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 lighter of the type referred to, comprising a casing, a top for said casing through which a wick-end protrudes to produce a flame thereon when desired, a covering and protecting cap and a flame extinguishing tube on an arm which is pivoted at one end and is substantially parallel to the said top in the inoperative or closed position, a curved flat spring underneath said arm, the free end of which spring is adapted to exert an upward pressure against the pivoted end of said arm, and two flat faces on said pivoted end adapted to maintain the said arm in two different positions, operative and inoperative respectively, under pressure of said spring, characterised in that the dihedral angle between the said faces is substantially acute, the two faces constituting a projection on the said pivoted end of the arm, the remaining portion of said pivoted end being rounded so as to slide easily over the free end of said spring, thereby enabling said arm to swing further outwardly to a fully open position substantially at 180° from its

original closed or inoperative position, the friction of the spring on said rounded portion then having a tendency to keep said arm in said fully open position, but permitting the arm to turn easily in the reverse direction under the action of an external force acting on said arm to close same.

2. A lighter as claimed in Claim 1, further characterised in that a head is provided at the free end of the arm, transversely of the axis of the pivot pin, the covering and protecting cap being secured on said head, whereby a relatively large portion of said cap may be secured on said arm.

3. In a lighter as claimed in Claims 1 and 2, a covering and protecting cap extending diagonally for covering and protecting the spark-producing wheel of the lighter, and carrying the flame-extinguishing tube.

4. In a lighter according to any one of the preceding Claims, a stud for the pivot of the swinging arm made of one piece of sheet material bent into a U shape and having ears projecting through holes in the top of the lighter whereby said stud may be secured on said top, the pivot pin for the arm crossing the upper part of said stud.

5. In a lighter as claimed in Claim 4, a stud having a raised front portion at the two sides thereof for the bore of the holes receiving the pivot pin, the closed rear portion of said stud being adapted to provide a stop for the arm in its fully open position.

6. The lighter, substantially as described and as shown in the appended drawings.

Dated this 3rd day of November, 1943.
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[This Drawing is a reproduction of the Original on a reduced scale.]

