June 8, 1943. I. FLORMAN 2,321,135

CIGARETTE LIGHTER

Filed Aug. 13, 1940

Fig. 1

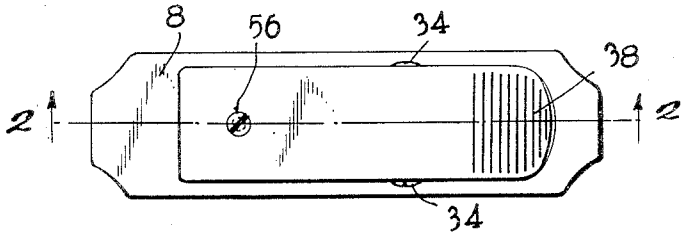


Fig. 2

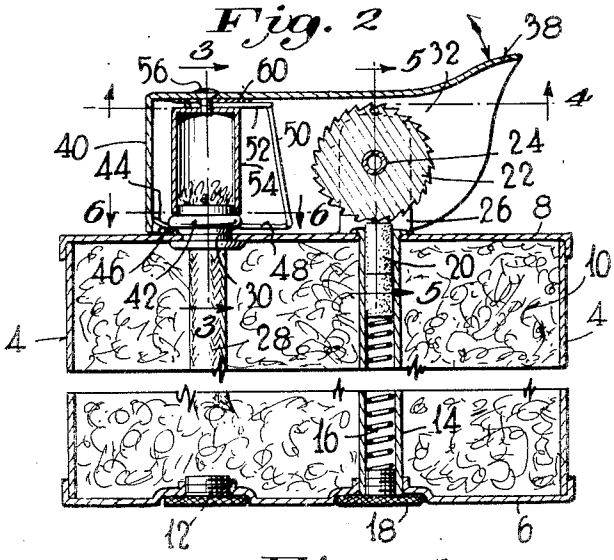


Fig. 5

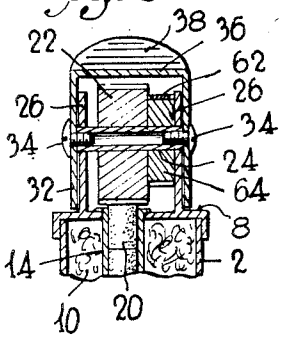


Fig. 4

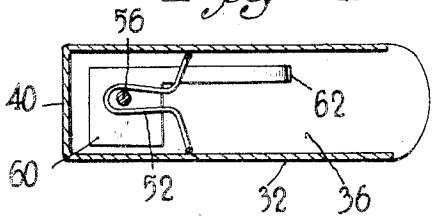


Fig. 3

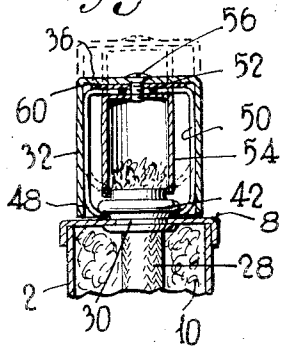
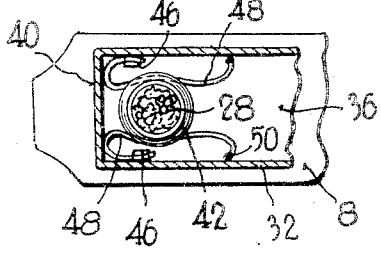


Fig. 6



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CIGARETTE LIGHTER

Irving Florman, New York, N. Y.

Application August 13, 1940, Serial No. 352,430

6 Claims. (Cl. 67—7.1)

This invention relates to lighters, and particularly to pocket lighters for cigars and cigarettes.

The primary object of the invention is to provide a lighter of simple structure which operates with certainty at all times.

A further object of the invention is to provide a pyrophoric lighter with means which offer resistance to the movement of the actuating means, which resistance is only released by a given pressure, so that the actuating means will be moved suddenly and sharply to impart a quick movement to the igniting mechanism.

Still a further object of the invention is to provide a lighter of this type which furnishes a large fuel space, and in which the mechanism is located within the vertical projections of the walls of the fuel space. In this way a lighter which will operate for some time without refilling, yet which occupies a small amount of space and is certain of operation, is produced.

One difficulty in the operation of lighters of the pyrophoric type lies in the accumulation of flint chips around the base of the wick and on the wick itself. These chips often clog or cover the wick to such an extent that it will not catch fire. A further object of the invention is to provide means which prevent this accumulation of flint chips on the wick.

More specifically, the invention contemplates the provision of means which impart a wiping action to the wick tube at each operation of the lighter, which serves to wipe off flint chips therefrom.

Further objects and advantages of the invention will appear more fully from the following description, particularly when taken in conjunction with the accompanying drawing which forms a part thereof.

In the drawing:

Fig. 1 is a top plan view of a lighter embodying my invention;

Fig. 2 is a cross section on the line 2—2 of Fig. 1; and

Figs. 3, 4, 5 and 6 are cross sections on the lines 3—3, 4—4, 5—5 and 6—6, respectively, of Fig. 2.

The lighter comprises a body formed of side walls 2, end walls 4, a bottom wall 6 and a top wall 8. The body so formed constitutes the fuel chamber and is filled with absorbent cotton 10, or other suitable material, for holding a liquid fuel. It may be filled through a threaded plug 12 in the bottom wall 6.

Extending through the body and fuel chamber is a flint tube 14 closed at the bottom by a threaded plug 18 and containing a coil spring 16 which engages the bottom of a flint 20, pressing the flint upwardly. The flint engages the periphery of a flint wheel 22 which is mounted on a shaft 24 carried in ears 26 upstanding from the top wall 8. By rotation of the wheel 22, sparks are produced from the flint 20.

The wick 28 extends upwardly through a wick tube 30, likewise mounted in the top wall 8. The wick, of course, extends downwardly into the absorbent cotton 10 and draws fluid therefrom.

Mounted on the outside of the ears 26 is a snuffer member having side walls 32 which are pivoted on screws 34 threaded into the ends of shaft 24. The snuffer also has a top wall 36. On one side of the pivot 24 the top wall 36 is bent upwardly to form a finger piece 38. At the other end, there is provided a front wall 40 closing the space between the side walls 32 and the top wall 36.

The construction of a lighter of this general type is well known. However, according to the invention, there is carried on the wick tube 30 an annular projection of generally rounded cross section 42. This is securely mounted on the outside of the wick tube above the top wall 8 of the fuel chamber. Connected to the snuffer in a manner to be described is a flint chip wiper and catch member in the form of spring wire. The ends of this spring wire, indicated at 44, are engaged above inward projections 46 on the lower edges of walls 32 adjacent the front wall 40 of the snuffer. The wires then have horizontal portions extending rearwardly towards the pivot 24 and bent inwardly towards each other, as indicated at 48. These portions 48 end in upwardly extending portions 50 which then are connected by a U-shaped portion 52 which rests flat close to the top wall 36 of the snuffer. The space between the arched or bowed portions 48 is less than the greatest diameter of the annular member 42, and preferably about equal to the outside diameter of wick tube 30.

A snuffer cap 54 is arranged within the snuffer and above the wick tube. This snuffer cap is connected to the top wall 36 by a screw or other securing member 56. Screw 56 passes through the bight of the U-shaped portion 52 of the spring, and this portion 52 is held close to the top wall 36 by the cap 54 (see Figs. 2 and 3).

Motion is imparted to the flint wheel 22 by a pawl formed of a flat leaf spring member having a portion 60 pierced by screw 56 and arranged between portion 52 of the wire and the top wall 36 of the snuffer, and a projecting pawl

portion having a downwardly bent end 62 forming a tooth which is engageable with the teeth of a ratchet wheel 64 rigidly secured to the flint wheel 22.

The operation of the mechanism above described is as follows:

When the mechanism is in the position shown in Fig. 2, in order to operate the lighter the finger or thumb is applied to the finger piece 38 and a downward pressure is exerted thereon in the direction indicated by the arrow. Since the spring portions 48 are beneath the greatest diameter of the annular member 42, they will resist any upward movement of the snuffer until their resilience is overcome. When sufficient pressure is applied, however, the spring members 48 will suddenly release the snuffer and it will rise with a quick motion. As the snuffer rises, spring portions 48 move over the outside of wick tube 30 and then over the wick, thus removing flint chips therefrom. At the same time, the pawl 62 turns wheel 64 and thereby flint wheel 22 to throw sparks onto the cleaned wick 28. Because of the sudden motion produced by a considerable pressure, this movement of the flint wheel will be in the nature of a snap motion and will be certain to produce a sufficient spark to ignite the wick.

The snuffer may then be returned by pressure of the hand to its normal or closed position. As it moves downwardly, the spring portions 48 will again remove flint chips from the wick and wick tube, and then snap over the ring 42 to hold the snuffer member against accidental opening in the pocket.

It will be noted that the lighter mechanism is located completely within the vertical projections of the walls 2 and 4 of the fuel chamber, and that it is located entirely above the top wall and the upper edges of the side walls, this being the most compact arrangement and giving the greatest available fuel space.

While I have described herein one embodiment of my invention, I wish it to be understood and that I do not intend to limit myself thereby, except within the scope of the appended claims.

I claim:

1. In a cigarette lighter, a fuel chamber, a wick tube, a wick in said wick tube communicating with said fuel chamber, a pivoted snuffer movable to cover and uncover said wick, means operated by movement of said snuffer to uncover the wick to project a spark upon said wick, manual means to move said snuffer, said wick tube having an annular projection thereon, and wire spring members carried by said snuffer and having portions opposite said annular projection, the space between said portions being less than the maximum diameter of said projection, whereby said portions may snap over and engage beneath said projection so as to prevent movement of said snuffer until a predetermined pressure is applied to said manual means and then wipe the wick tube and wick as they move upwardly thereover.

2. In a cigarette lighter, a fuel chamber, a wick tube, a wick in said wick tube communicating with said fuel chamber, a snuffer movable to cover and uncover said wick, means operated by movement of said snuffer to uncover the wick to project a spark upon said wick, manual means to move said snuffer, said wick tube having an annular projection thereon, wire spring members carried by said snuffer and having bowed portions opposite said annular projection, the space between said bowed portions being less than the maximum diameter of said projection, whereby said bowed portions may snap over and engage beneath said projection so as to prevent movement of said snuffer until a predetermined pressure is applied to said manual means and then wipe the wick tube and wick as they move upwardly thereover, a cap secured within the snuffer above the wick, said spring members having a connecting portion arranged between the cap and the snuffer and held in position thereby.

3. In a lighter, spark-producing mechanism, wick holding means, manual means for operating said spark-producing mechanism, and cooperating means on said wick holding means and said manual means for normally preventing operation of said manual means until a predetermined pressure has been applied thereto and for imparting a wiping action to said wick tube and wick when such predetermined pressure is applied and the spark producing mechanism is operated.

4. In a cigarette lighter, a fuel chamber, a wick tube, a wick in said wick tube communicating with said fuel chamber, a snuffer movable to cover and uncover said wick, means operated by movement of said snuffer to uncover the wick to project a spark upon said wick, said wick tube having a projection thereon, and spring members carried by said snuffer and having portions opposite said projection, the space between said portions being less than the maximum diameter of said projection, whereby said portions may wipe said wick and tube and may snap over and engage beneath said projection so as to prevent movement of said snuffer until a predetermined pressure is applied thereto.

5. In a cigarette lighter, a fuel chamber, a wick tube, a wick in said wick tube communicating with said fuel chamber, a pivoted snuffer movable to cover and uncover said wick, a cap secured within the snuffer above the wick, means operated by movement of said snuffer to uncover the wick to project a spark upon said wick, manual means to move said snuffer, said wick tube having an annular projection thereon, and a continuous wire spring having an intermediate U-shaped portion arranged between said cap and snuffer and held in position thereby, bowed portions opposite said annular projection, and free ends adjacent the lower edge of the snuffer, said snuffer having inward projections at its lower edge engaging said free ends, the space between said bowed portions being less than the maximum diameter of said wick tube, whereby said bowed portions may wipe said wick and tube and many snap over and engage beneath said projection so as to prevent movement of said snuffer until a predetermined pressure is applied to said manual means.

6. In a pyrophoric lighter, an open mouthed wick tube, a wick disposed within said tube end protruding and flaring from the mouth thereof, a manually operable member for actuating the lighter, means actuated by said member during each cycle of operation thereof for producing a pyrophoric spark to ignite the wick, means also actuated by said member during each cycle and prior to the actuation of said spark producing means for wiping the protruding portion of said wick, thereby to prevent the accumulation of flint chips thereon, and means for causing said wiping means to snap suddenly against a portion of said wick to effect the wiping action.

IRVING FLORMAN.