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H. B. GREENE

2,472,822

LIGHTER

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Fig. 1.

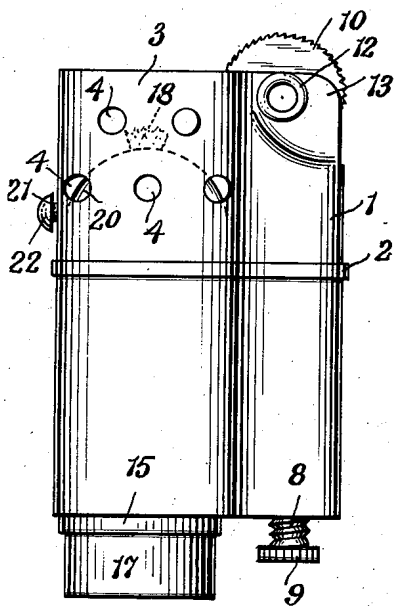


Fig. 2.

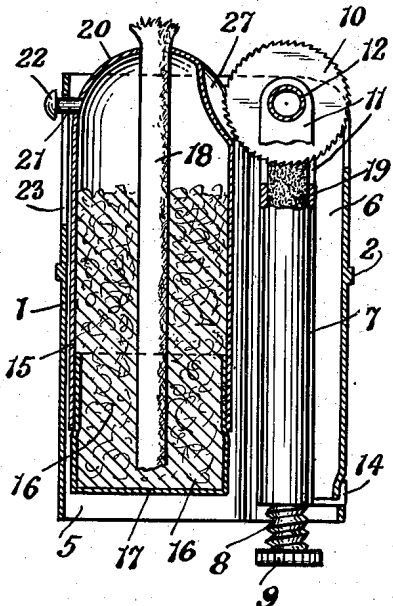


Fig. 3.

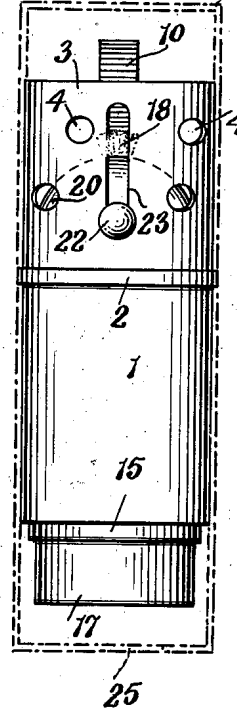


Fig. 4.

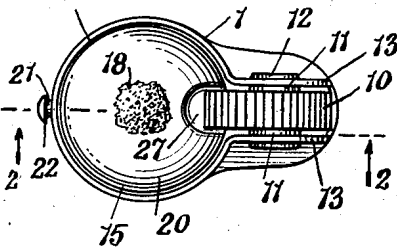
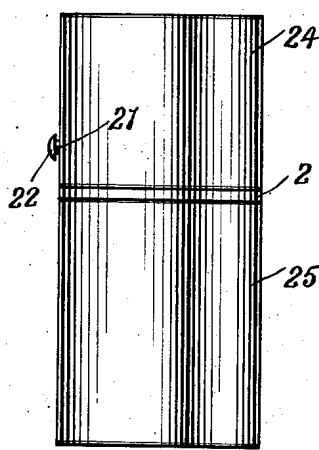


Fig. 5.



Howard B. Greene  
INVENTOR.  
BY Joseph J. Duhan  
his Attorney

# UNITED STATES PATENT OFFICE

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LIGHTER

Howard B. Greene, Cheshire, Conn.

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1 Claim. (Cl. 67-7.1)

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This invention relates to cigar or cigarette lighters of the pyrophoric type and one of the objects of the invention is to provide a lighter of this character which can be used conveniently for lighting cigars, cigarettes and pipes.

Many pyrophoric lighters are provided with an enclosure or wind-screen permanently arranged about the wick to thereby prevent the flame from being extinguished by a draft of air. The wick so enclosed by the wind screen is thus rendered comparatively inaccessible so that when it becomes necessary to raise the wick to expose a fresh portion of it to the sparks from the lighting mechanism, it is difficult to reach the end of the wick and draw it up through the aperture in which it is located. Very often a tweezers or similar tool is required to enable the wick to be raised. The present invention contemplates the provision of means by which the wick can be readily reached and engaged to draw out a fresh portion of it.

It has also been found that with lighters of the character in which a wind screen is used, the flame cannot readily reach the tobacco in a pipe so that the use of such lighters by pipe smokers has been found unsatisfactory. My invention contemplates the provision of means by which the wick may be moved to expose it beyond the wind screen and render the flame readily accessible to the tobacco in a pipe. Thus, while a wind screen is incorporated in my improved lighter, since a wind screen is a desirable adjunct in a lighter, the disadvantages encountered in using a wind screen in a device of conventional structure are obviated, as will be hereinafter explained.

Another object of the present invention is to provide means by which the fuel container is rendered readily accessible for refilling; to provide means by which the projection of the flame above the wind-screen may be regulated and to provide generally a simplified structure unlikely to get out of order and which will be entirely reliable in operation.

More particularly, the invention contemplates the provision of a tubular casing in which a tube for holding the pyrophoric material and an abrasive wheel is mounted, said tube and its associated parts being fixedly supported in the casing; of a slidable fuel container within the casing and mounted to slide axially thereof, said container having a protruding wick at one end and a closure cap at the other, and means for controlling the extent of sliding movement of the container, whereby the wick will be projected

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beyond the wind-screen end of the casing when the container is moved to the limit of its sliding movement in one direction and the closure cap will be exposed beyond the other end of the casing when the container is moved to its limit of sliding movement in the opposite direction.

These and other objects are attained by the invention, a more particular description of which will hereinafter appear and be set forth in the claim appended hereto.

In the accompanying drawing, wherein an illustrative embodiment of the invention is disclosed, Fig. 1 is a side elevation of a lighter made in accordance with the invention, with the cover members removed; Fig. 2 is a vertical sectional view through the structure of Fig. 1, the section being taken on the line 2-2 of Fig. 4, looking in the direction of the arrows; Fig. 3 is an end view of the structure of Fig. 1, looking at the left end of the same; Fig. 4 is a top plan view of the lighter with the cover members removed, and Fig. 5 is a side elevation of the lighter with the cover members in place.

With reference to the drawing, 1 indicates the tubular outer housing of the lighter, the same being in the form of an open-ended casing so shaped as to provide two chambers designated respectively at 5 and 6. One end portion of the casing 1, herein referred to as the upper end, and indicated at 3, is arranged to form a wind-screen about the wick 18 when the fuel chamber and the wick carried thereby are in lowered position as will be hereafter described. Said portion 3, providing a wall around the wick when the wick is in the lowered position of Figs. 1 and 3, is apertured as indicated at 4 or in any other suitable manner known in this art.

Fixedly mounted in the chamber 6 of the casing 1, is the flint tube 7 in which is mounted the rod of pyrophoric material 19, the same being urged toward the abrasive wheel 10 by means of a coil spring within the tube 7, the coil spring being placed under the requisite pressure by means of the adjusting screw 8 threaded in the lower end of the tube, said screw having the head 9 available below the lower end of the casing 1 for manual operation when desired. The tube 7 and the mounting of the pyrophoric material therein, as well as the spring for urging the pyrophoric material into contact with the abrasive wheel is of conventional construction.

The abrasive wheel 10 is rotatively mounted on a tubular rivet 12 extending through the lugs 11 rising from the tube 7, and the rivet 12 is also extended through a pair of ear portions 13 con-

stituting inwardly-bent parts of the wall of the casing 1, as clearly seen in Figs. 1 and 4. The rivet 12 thus constitutes an axle for the abrasive wheel 10, and at the same time it serves to anchor the upper end of the tube 7 to the casing 1. The lower end of the tube 7 is secured to the casing by means of a laterally extended lug 14 or other equivalent fastening means whereby the tube will be securely and rigidly held within the chamber 6 of the casing 1. It will be observed that the abrasive wheel 10 projects sufficiently over the upper end of the casing 1 to enable the periphery of the wheel to be readily engaged by the thumb and spun to thereby cause sparks to be emitted in the known manner.

Mounted for slidable movement within the chamber 5 of the casing 1 is the fuel container 15. The same is of cylindrical form and is provided at its lower end with a removable closure cap 17 which, when removed, allows access to the cotton 16 or other absorbent material within the fuel container, as well as the lower portion of the wick 18 therein, and permits filling of the fuel container with the lighter fluid. The closure cap 18 may be of the telescopic type and hold itself frictionally in place, or it may be threaded on the end of the fuel container or otherwise maintained on the end of the fuel container to close that end of the same.

The opposite end of the fuel container 15 is domed or rounded as indicated at 20 and is provided with a central aperture through which the wick 18 protrudes to an extent necessary to enable it to be ignited by sparks projected from the pyrophoric material by manual rotation of the abrasive wheel 10.

Projecting laterally from the fuel container near its upper or domed end 20, is a pin 21 terminating in a head 22. The pin 21 extends through an elongated slot 23 formed in the side wall of the casing 1, and the head 22 of the pin is located on the outside of the casing 1 where it may be engaged by the finger to move the fuel container 15 up or down within the casing 1.

In Figs. 1 and 3 the fuel container 15 is in its lowered position, where it will be noted that the projecting upper end portion of the wick 18 is well below the upper end of the casing 1 and is surrounded by the wind-screen portion 3 of the casing. At this time it will be seen that the pin 21 is at the lower end of the slot 23, said lower end of the slot thus limiting the extent of descent of the fuel container within the casing 1. When the fuel container is in its lowered position, the closure cap 17 is disposed below the lower end of the casing 1 and the cap is thus exposed and can be readily engaged by the fingers and removed should it be desired to replenish the fuel supply within the fuel container 15.

The wick is usually ignited while the fuel container is in its lowered position (Figs. 1 and 3) and for lighting a cigarette or cigar it will be found unnecessary to raise the fuel container and the wick carried thereby. When wishing to light a pipe, and when it is desired that the flame from the wick shall enter down into the bowl of the pipe to ignite the tobacco therein, the finger is placed against the button or head 22 and the fuel container is slid upwardly to thus raise the protruding end of the wick 18 above or beyond the wind-screen portion 3 of the casing, as shown in Fig. 3. The lighter is then inverted and the flame from the exposed wick-end will readily extend down into the bowl of a pipe and ignite the tobacco therein. It will be noted that

the domed end portion 20 of the fuel container is formed with an indentation or depression 27 directed toward the abrasive wheel 10 to thus clear the wheel, and if desired, the lower end of this depression can be used as a stop or abutment against the wheel 10 to limit to elevating movement of the fuel container.

From the foregoing, it will be clear that with the arrangement shown, the usefulness of a lighter is materially increased. In most lighters wherein the end of the wick is surrounded by a wall constituting a wind-screen, it is difficult to reach the end of the wick and pull it out of the fuel container when the projecting end becomes burned away. With the present structure, it is merely necessary to slide the fuel container upwardly to bring the projecting end of the wick above the top of the wind-screen, whereupon the end of the wick is instantly available for adjustment. Also, the raising and lowering of the fuel container and the wick carried thereby is very useful for the directing of the flame, as previously explained.

In Figs. 1 to 4 inclusive, the lighter is shown with its cover members removed. In normal use, the lower portion of the casing 1 is covered by a slip-on type of cover member 25 which has its upper end abutting against the shoulder 2 provided on the casing 1, and the top portion of the lighter is covered by a second slip-on cover member 24. When it is desired to ignite the lighter it is necessary to remove only the top cover member 24.

While I have shown and described one embodiment of the invention, it is obvious that numerous changes may be made in the same without departing from the spirit of the invention. The fuel container 15 is normally made to slide with a certain amount of friction within the chamber 5 so that it will frictionally hold any position to which it may be slid by pressure imposed on the button or head 22. Thus, it not only can be maintained in either a fully lowered or fully elevated position, but can be located in any selected intermediate position by merely pushing the button 22 up or down to the required extent. It will be apparent that the fuel container and the wick carried thereby, could be readily elevated by spring impulse, or the fuel container might be freely slidable within the casing without material friction, whereby the turning upside down or the inverting of the lighter would result in the fuel container sliding toward the end 3 of the casing to thereby project the end of the wick beyond said end 3 of the casing. Also, while the shape and arrangement of the casing; the parts mounted therein and the cover members are specifically indicated, it will be clear that departures therefrom may be readily devised, as is contemplated by the scope of the claim appended hereto.

What I claim is:

In a pyrophoric lighter, a casing in the form of an open-ended tube, the side walls of the tube being indented to form the casing into a pair of substantially parallel tubular chambers, a spark-creating device including a flint-holding tube of less outside diameter than the inside diameter of the chamber in which said tube is located, the tube being spaced from the wall of said chamber, a lug projecting radially from one end of the flint-holding tube and extending to and being connected to the wall of said chamber, the opposite end of the flint-holding tube being provided with a pair of lugs between which a rotative abrasive wheel is mounted, the sides of

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the tube-containing chamber being indented to form ears between which the lugs on the tube are positioned, an axle carrying the abrasive wheel, said axle extending through the ears and lugs, a fuel container slidably mounted in the second chamber of the casing alongside of the spark-creating means, said fuel container being slidable axially in the tube and having a wick protruding from one of its ends, the end of the fuel container from which the wick protrudes being substantially dome-shaped and being recessed, the rotative abrasive wheel being adapted to extend into the recess in the domed head of the fuel container when the container is slid to the limit of its movement in a direction to project the end of the wick beyond one end of the casing.

HOWARD B. GREENE.

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