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2,594,700

CIGAR AND CIGARETTE LIGHTER

Filed Oct. 7, 1948

2 SHEETS—SHEET 1

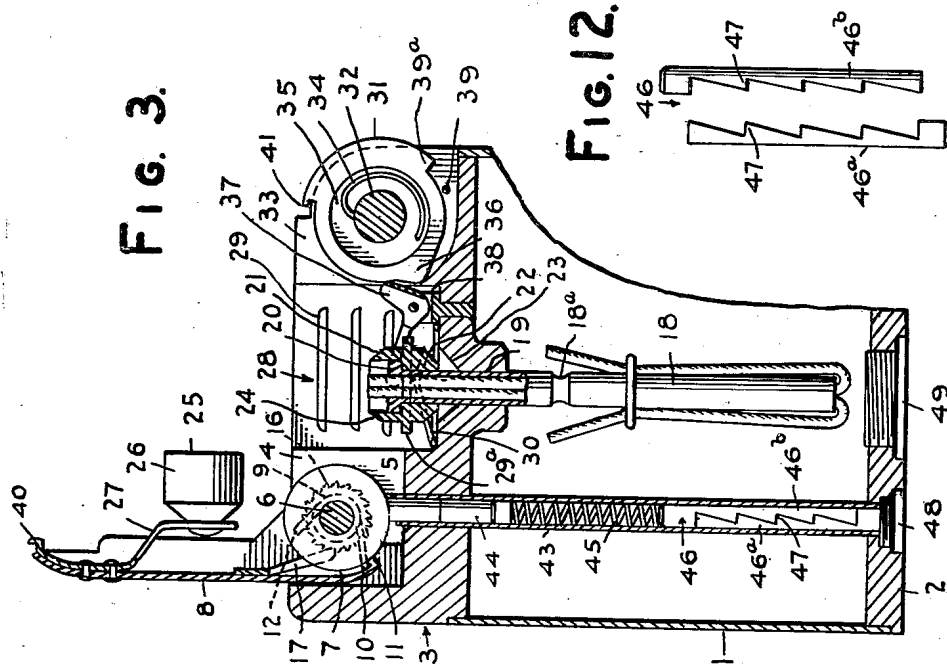


FIG. 3.

FIG. 12.

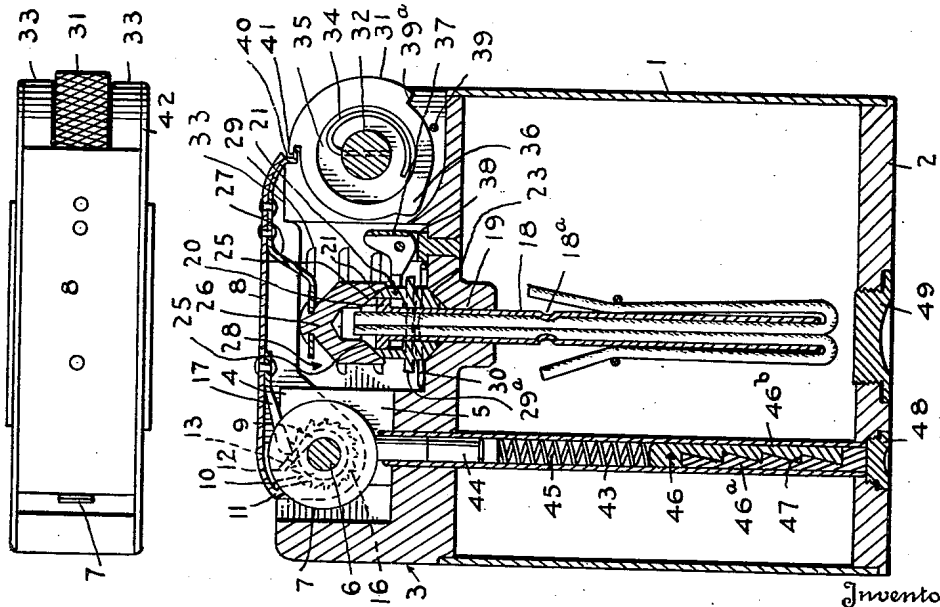
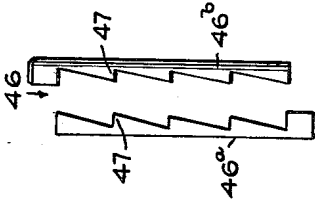


FIG. 1.

FIG. 2.

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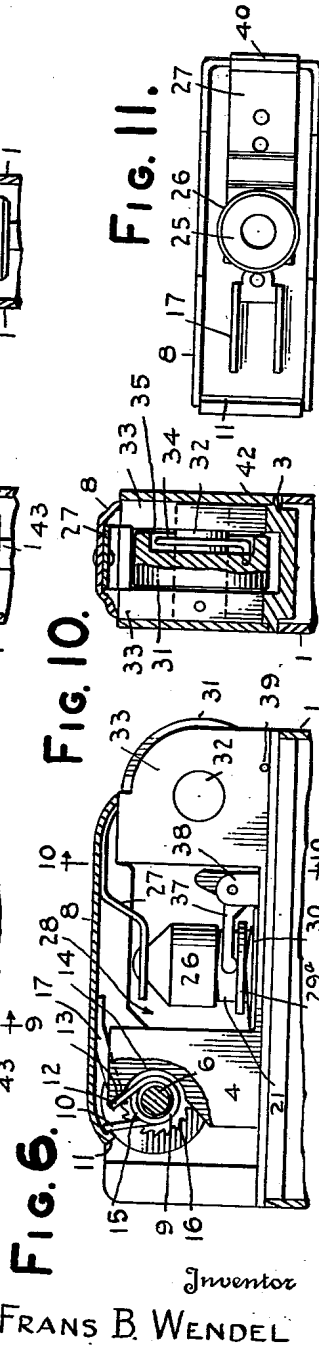
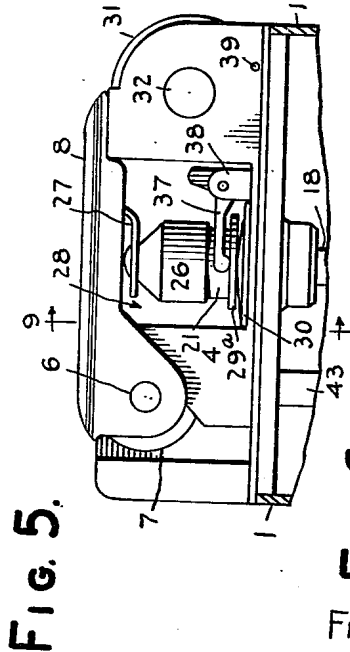
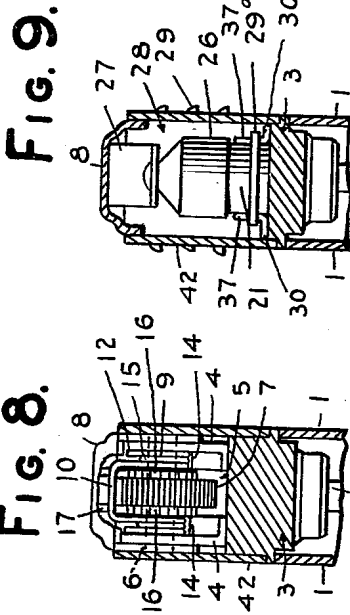
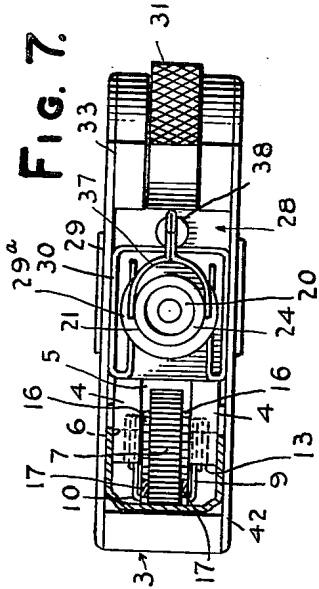
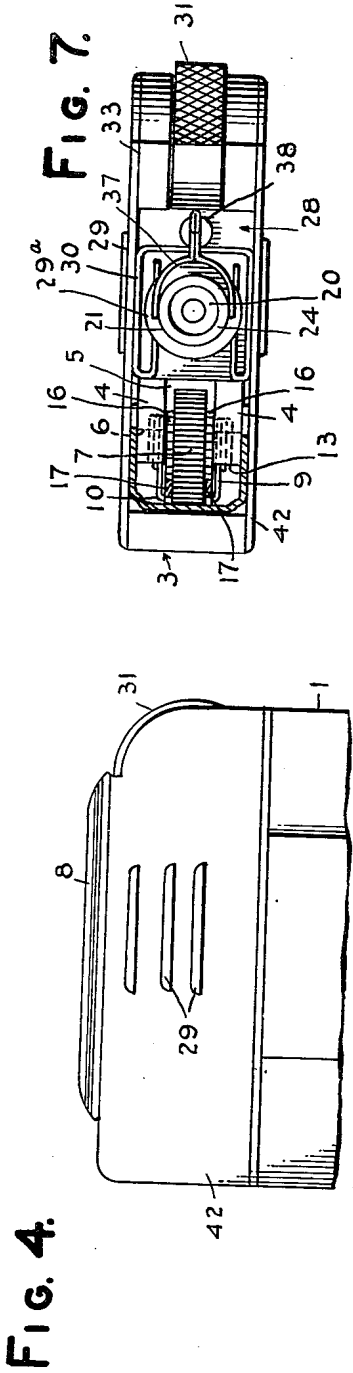
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2 SHEETS—SHEET 2



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# UNITED STATES PATENT OFFICE

2,594,700

## CIGAR AND CIGARETTE LIGHTER

Frans B. Wendel, Nokomis, Fla.

Application October 7, 1948, Serial No. 53,215

7 Claims. (Cl. 67-7.1)

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This invention relates to an improved cigarette and cigar lighter of the automatic pyrophoric type wherein, upon release of the swinging cover member, the flame producing mechanism is operated simultaneously with the uncovering of the wick.

The primary object of this invention is to provide a pocket cigarette and cigar lighter having structure included to properly seal the chamber containing the exposed end of the wick so as to prevent any loss of fuel when the lighter is not in use.

Another object of the invention is to provide means whereby the size of the flame may be regulated as desired under varying conditions.

A further object of the invention is to provide a mechanism for releasing the cover member and also operable to cause regulation of the size of the flame.

A still further object of the invention is to provide a supporting tube for the reception of a plurality of flints which are advanced to active position by means of a coiled spring, the tension of which is regulated through the medium of an improved adjustable element.

With the above, other objects of this invention are to improve the casing construction, the various operating parts and supporting structure therefor, as well as means for restricting the flow of fuel.

With the above objects in view, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth particularly in the claims.

The drawings illustrate the preferred form of the invention in which:

Figure 1 is a top plan view of the lighter with the cover closed.

Figure 2 is a vertical sectional view of the lighter with the cover closed and the various parts in normal position when the lighter is not in use.

Figure 3 is a partial sectional view showing the cover raised and the lighter ready for use.

Figure 4 is a vertical plan view of the upper part of the lighter.

Figure 5 is a similar view with a side plate removed to illustrate the cover mounting and other parts.

Figure 6 is a similar view illustrating the pawl and ratchet mechanism for rotating the flint wheel as well as the cover operating spring.

Figure 7 is a top plan view with the raised cover shown in section.

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Figure 8 is a sectional view illustrating the mounting of the cover operating spring and the rotating mechanism for the flint wheel.

Figure 9 is a sectional view taken on the line 9-9 of Figure 5.

Figure 10 is a sectional view taken on the line 10-10 of Figure 6.

Figure 11 is a bottom plan view of the cover and associated parts.

Figure 12 is a vertical plan view of the flint and spring adjusting rod.

Referring to the drawings, the lighter is provided with a hollow body for receiving a supply of liquid fuel, and comprises the wall members 1, a bottom closure plate 2, and a top closure member 3 upon which the various operating parts of the lighter are mounted.

Projecting upwardly from the top closure member are two spaced brackets 4 forming a channel 5 directed toward the center of the lighter to guide the ignition sparks to the wick. These brackets support the pivot pin 6 upon which is rotatably mounted the flint wheel 7 and the cover 8. In order that the cover may be automatically thrown in its open position, a coiled spring 9 is employed. This spring surrounds the pin 6 and has an intermediate portion 10 engaging a depending flange 11 of the cover 8 while the ends 12 of said spring engage walls 13, of a recess 14 provided in the brackets 4 to receive the coils 15 of the spring.

On each side, and connected to the flint wheel 7, are ratchet wheels 16 engaged by the cover carried pawls 17. It will be seen that on movement of the cover 8 to open position, through the medium of the spring 9, the pawls 17 will operate the ratchet wheels and cause rotation of the flint wheel to deliver ignition sparks from a flint through the channel 5 directly to the wick. On closing the cover the pawls will ride over the ratchet wheels producing no movement of the flint wheel.

Passing through, and depending from, the top closure member is a wick-containing tube 18 having an inwardly directed corrugation or other formation 18a, producing a restricted opening in the tube which compresses the wick to a greater extent at that point, retarding the capillary flow of the fuel. The size and shape of the opening in the tube, formed by the corrugation, will be such as to prevent excessive feeding of the fuel which may accumulate in the chamber surrounding the wick end.

The wick tube 18 has a gas and liquid tight connection with the upper closure member 3, at 19, and is provided with an outwardly extending

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stop flange 20 at its upper end for limiting the upward movement of a combined flame regulator and fuel sealing member 21, which surrounds the upper end of the wick tube and has sliding engagement therewith. The lower end of this flame regulator and fuel sealing member is beveled or otherwise shaped at 22 to conform with a complementally shaped seat 23 in the top closure member to form a seal preventing any escape of gas or liquid fuel at this point which may have passed down between the wick tube and the combined flame regulator and fuel seal, when the lighter is not in use. The flame regulator and fuel seal member is also provided with a similar upper beveled contacting surface 24 adapted to have sealing engagement with the lower edge 25 of a flame extinguishing cap 26, the latter being carried by the pivot cover 3 through the medium of a spring 27.

As will be noted on reference to Figure 3, the wick is contained within a chamber 28 which acts as a wind guard having louver openings 29 for furnishing the necessary air to support combustion. Resting on the bottom of this chamber and having engagement with a flange 29a, of the member 21, is a spring 30 functioning to raise the member 21 whenever the cover is opened, the said spring 30 being formed of a lighter material than the spring 27 will yield under the pressure presented by the latter so that firm and tight sealing joints may be had between the seat 23, the beveled edges of the member 21 and the fuel extinguishing cap.

Whenever the cover 13 is raised the flame extinguishing cap is carried away from the wick by the spring 27 and out of engagement with the flame regulator and fuel sealing member 21, the latter is then raised to its highest position against the stop flange 20 by the spring 30 functioning to reduce the size of the flame due to the fact that it partially envelopes the exposed portion of the wick as will be clearly seen in Figure 3.

In order that the size of the flame may be regulated at will as occasion requires, means is provided to lower the regulator 21 to expose a greater amount of the wick, and the following structure is designed for this purpose. A cam wheel 31 is mounted upon a pin 32, supported by upstanding arms 33 formed integral with the top closure member 3. The cam wheel is rotated anti-clockwise through the medium of a coiled spring 34, housed in a chamber 35 provided in the side of the cam wheel and has formed integral therewith a cam 36. In front of the cam wheel 31, and in the path of movement of the cam 36, is a bifurcated bell crank lever 37, pivotally mounted in a bracket 38, which has engagement with the upper surface of the flange 29a, whereby manual operation of the cam wheel 31 will bring the cam 36 into operative engagement with the bell crank lever to oscillate the same and cause downward movement of the flame regulator and fuel sealing member 21. The degree of operation of the cam wheel 31 determines the height of the flame. A stop pin 39, in the path of a shoulder 39a, limits the clockwise movement of the cam wheel 31. The cover 3 is held in closed position by a latch comprising the flange 40 forming part of the spring 27 and the keeper 41 provided in the cam wheel 31.

The various parts supported by the top closure member 3 are placed in position prior to securing the side plates 42 to the top closure member.

Passing through the hollow body of the lighter, and having gas and liquid tight connections with

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the bottom and top plates, is a tube 43 containing a plurality of flints 44, a coiled spring 45 and a rod 46 for tensioning the coiled spring to properly present the flints in contact with the flint wheel 7. This rod 46 is composed of two like parts 46a and 46b, as illustrated in Figure 12, each part being provided with toothed formations 47 extending throughout the greater part of their length. As the flints are depleted the rod is withdrawn from the tube and the parts 46a and 46b are adjusted relative to one another to increase the length of said rod, retensioning the spring and advancing the flints to operative position. The bottom plate 2 has the usual closure plugs 48 and 49.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In combination with a lighter including a body for containing a supply of fuel, a cover for said lighter carrying a flame extinguishing cap, a wick tube projecting from said body, a wick in said tube having an end extending beyond said tube, and means for igniting the fuel fed by the wick, of means for regulating the size of the flame produced, said means comprising a tubular member slidably mounted on said wick tube adapted to extend beyond said tube to a position around said wick end to vary the amount of said wick being exposed to the flame, a spring for elevating said member to said position, a bell crank lever operatively engaging said slidable member, and a rotatable latch member for said cover including a cam adapted to engage said bell crank lever to lower said slidable member to different positions against the tension of the spring.

2. In combination with a lighter including a body for containing a supply of fuel, a wick tube projecting from said body, a wick in said tube having an end extending beyond said tube, and means for igniting the fuel fed by the wick, of means for regulating the size of the flame produced, said means comprising a tubular member slidably mounted on said wick tube adapted to extend beyond said tube to a position around said wick end to vary the amount of said wick being exposed to the flame, a circumferential flange extending from the body of said slidable member, a spring engaging the flange to elevate said slidable member to said position, a lever engaging said flange, and cam means to operate said lever for lowering the slidable member to different positions against the tension of said spring.

3. In combination with a lighter including a body containing a supply of fuel, a closure plate for said body, a wick tube extending through said plate, a tapered seat in said closure plate surrounding the tube, a wick in said tube having an end projecting beyond said tube and means for igniting the fuel fed by the wick, of means for regulating the size of the flame produced and forming a seal with the seat in the plate, said means comprising a tubular member slidably mounted on said wick tube adapted to extend beyond said tube to a position around said wick end to vary the amount of the wick being exposed to combustion, a spring for elevating said member and lever means for lowering said member to different positions against the tension of said spring means, said member having its lower end bevelled to conform with said tapered seat to provide a seal when the lighter is not in use.

4. In combination with a lighter including a

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body for containing a supply of fuel, a closure plate for said body, a wick tube extending through said plate, a seat in said closure plate surrounding the tube, a wick in said tube having an end projecting beyond said tube, a cover for said lighter having a flame extinguishing cap attached thereto, and means for igniting the fuel fed by the wick, of means for regulating the size of the flame produced and forming a fuel seal when the lighter is not in use, said means comprising a tubular member slidably mounted on said wick tube adapted to extend beyond said tube to a position around said wick end to vary the amount of the wick being exposed to the flame, a spring for elevating said member and a lever for lowering said member to different positions against the tension of said spring, said member having its ends shaped to form fuel seals with the seat and the cap.

5. In combination with a lighter including a body for containing a supply of fuel, a closure plate for said body, a wick tube extending through said plate, a seat in said closure plate surrounding the tube, a wick in said tube having an end projecting beyond said tube, a cover for said lighter having a flame extinguishing cap attached thereto, and means for igniting the fuel fed by the wick, of means for regulating the size of the flame produced and forming a fuel seal when the lighter is not in use, said means comprising a tubular member slidably mounted on said wick tube adapted to extend beyond said tube to a position around said wick end to vary the amount of the wick being exposed to the flame, a spring for elevating said member and a lever for lowering said member to different positions against the tension of said spring, said member having its ends shaped to form fuel seals with the seat and the cap, and said cap being attached to the cover by means of a spring having greater tensile strength than the member elevating spring.

6. In combination with a lighter including a body for containing a supply of fuel, a closure plate for said body, a wick tube extending through said plate, a seat in said closure plate surrounding the tube, a wick in said tube having an end projecting beyond said tube, a cover for said lighter having a flame extinguishing cap attached thereto, a latch for said cover, and means for igniting the fuel fed by the wick, of means for regulating the size of the flame produced and forming a fuel seal when the lighter is not in use, said means comprising a tubular mem-

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ber slidably mounted on said wick tube adapted to extend beyond said tube to a position around said wick end to vary the amount of the wick being exposed to the flame, and a lever actuated by means associated with the cover latch for lowering said member to different positions against the tension of said spring, said member having its ends shaped to form fuel seals with the seat and the cap.

7. In combination with a lighter including a body for containing a supply of fuel, a closure plate for said body, a wick tube extending through said plate, a seat in said closure plate surrounding the tube, a wick in said tube having an end projecting beyond said tube, a cover for said lighter having a flame extinguishing cap attached thereto, a rotary latch for said cover, and means for igniting the fuel fed by the wick, of means for regulating the size of the flame produced and forming a fuel seal when the lighter is not in use, said means comprising a tubular member slidably mounted on said wick tube adapted to extend beyond said tube to a position around said wick end to vary the amount of the wick being exposed to the flame, and a lever actuated by a cam associated with the cover latch for lowering said member to different positions against the tension of said spring, said member having its ends shaped to form fuel seals with the seat and the cap.

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