May 17, 1949. R. WOLANSKE 2,470,734

POCKET LIGHTER FOR CIGARS AND CIGARETTES

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Fig. 1.

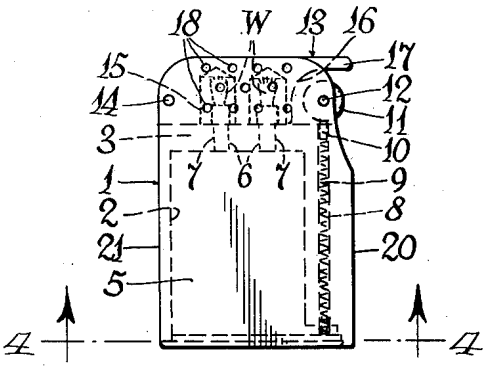


Fig. 5.

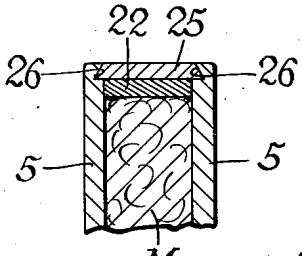


Fig. 2.

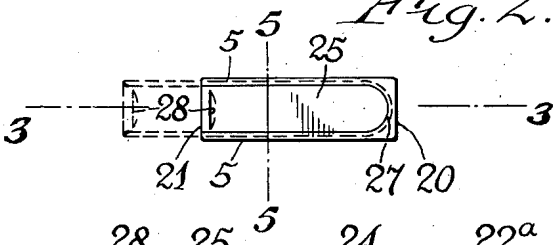


Fig. 6.

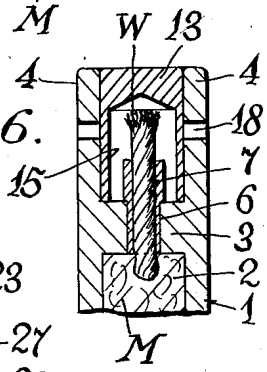


Fig. 3.

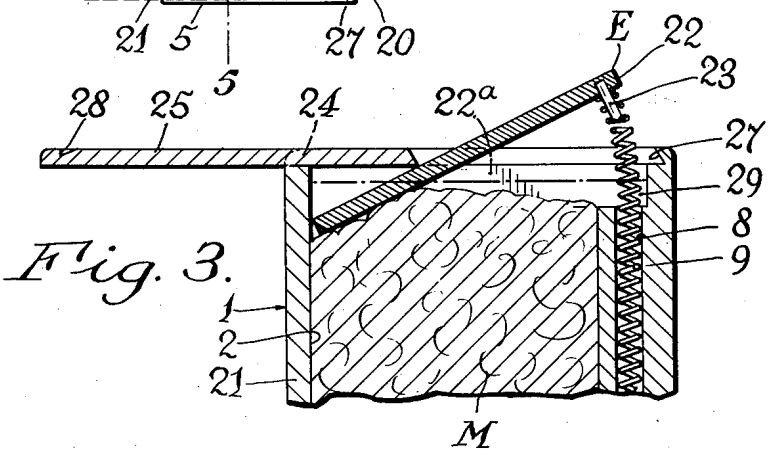
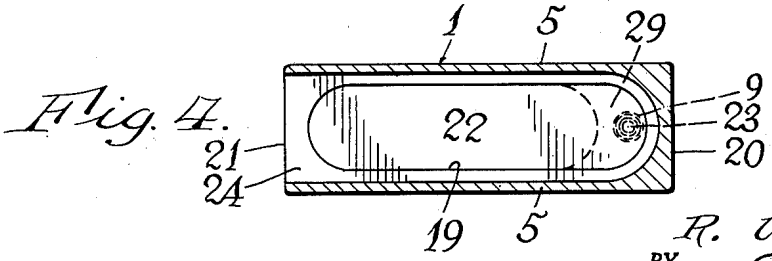


Fig. 4.



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POCKET LIGHTER FOR CIGARS AND CIGARETTES

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4 Claims. (Cl. 67—7.1)

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This invention relates to improvements in pocket lighters for cigars and cigarettes which utilize a volatile liquid fuel and include an exposed wick, a friction wheel and a spring loaded flint element held against the friction wheel, the wick being located in such adjacency to the point of contact between the friction wheel and the flint element that the spark developed by the rotation of the friction wheel will ignite the vapor of the fluid which is in capillary suspension in the wick.

Such lighters include a hollow body member formed to provide a main chamber for the absorbent material which is saturated with the liquid fuel and in which the wick is arranged, the chamber having at one end a wall provided with an opening through which the wick is passed and beyond which it is exposed for the purpose of ignition. The body member is also formed with a separate tubular chamber for the spring and flint element, the end wall of the chamber having an opening through which the flint element is exposed and the flint element being loaded or biased by the spring. Beyond the end wall the body member has a mounting for the pintle of the friction wheel against which the flint element is pressed by its loading spring.

In one type of such lighters the body member has a self-contained bottom structure for the main chamber and the spring chamber. Heretofore this bottom structure has consisted of an integrally attached wall having tapped openings for the accommodation of closure plugs for the respective chambers. These plugs require removal and replacement for the purpose of adding fuel to the main chamber and substituting a new flint element; and are usually formed with knurled edges for manipulation by the fingers or with diametrical grooves for cooperation with a screw driver or equivalent device.

This type of lighter with the bottom structure generally described, while satisfying the demands of manufacturing economy, has substantial disadvantages in use. The closure plugs, if tightened beyond a certain degree, are not conveniently removable. The users frequently fail to distinguish between them. The leakage past the closure plugs, particularly if they are tightened only sufficiently to enable their convenient removal, is such that the volatile liquid fuel evaporates so rapidly as to involve undue waste and the inconvenience of replenishment at unduly short intervals.

The invention is directed to improvements in the bottom structure of the hollow body members of lighters of the type described. Its object is to provide a lighter in which quick and easy access is given at once to the main chamber and the spring chamber, in which the necessity for preliminary selection on the part of the user between the closures of the chambers is eliminated, and in which an efficient seal is provided against the too rapid loss by evaporation of the volatile liquid fuel.

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In the accompanying drawing:

Figure 1 is a side elevation of the lighter in which the features of the invention are incorporated.

Figure 2 is a bottom plan view thereof.

Figure 3 is a partial vertical sectional view, the lighter being in an inverted position, in the plane 3—3 of Figure 2.

Figure 4 is a horizontal sectional view on the line 4—4 of Figure 1, looking in the direction of the arrows.

Figure 5 is a partial cross sectional view in the plane 5—5 of Figure 2, the lighter being in an inverted position.

Figure 6 is a detail sectional view on the line 6—6 of Figure 1.

The body member 1 of the lighter is formed with a relatively large chamber 2 for the compacted absorbent material M, such as raw cotton, which is saturated with the liquid fuel. The member 1 is also formed with a top wall 3 for the chamber 2.

The "burner" and ignition elements are located beyond the top wall and may be of any appropriate form and arrangement. In the construction shown, by way of example, the body member is provided beyond the top wall 3 with parallel wing extensions 4 substantially co-planar with the side walls 5 of the chamber 2. One or more wicks may be arranged in any suitable manner within the chamber 2. The drawing shows a lighter in which two wicks are employed, the wall 3 having openings 6 between its upper and lower faces and, in alinement with them, collars 7 which are located between the wings 4, the wicks being passed through the openings 6 and collars 7 and the latter maintaining the projecting end portions W of the wicks in planes substantially parallel to the planes of the wings 4. At one side of the chamber 2 the body member is also formed with the relatively narrow tubular chamber 8 axially parallel to the chamber 2 and which is open to the upper face of the wall 3. The chamber 8 accommodates and confines the usual helical spring 9 provided for the loading of the flint element 10, the upper portion of which projects

slightly beyond the wall 3 and, due to the spring 9, bears with suitable pressure upon the knurled peripheral surface of the usual friction wheel 11. The friction wheel 11 is mounted upon a pintle 12 which is fitted in the wings 4 adjacent the front of the lighter, the friction wheel projecting suitably beyond the wings 4 to enable its manipulation by the thumb in the well known manner. The top closure element 13 is mounted upon a pintle 14 which is fitted in the wings 4' adjacent the rear face of the lighter and is acted upon by the usual spring arrangement (not shown) to complete its movement to open position when it has been moved by thumb pressure beyond a position of dead center. The inner flat face of the element 13 normally has sealing engagement with the upper flat face of the wall 3; and for the purpose of insuring the efficiency of such engagement the contacting faces of the element 13 and the wall 3 may be suitably machined. The element 13 is also formed with suitable recesses 15 to accommodate the projecting wick portions W when the element 13 is in its closed position. The element 13 is fashioned with a clearance 16 for the friction wheel 11 and with a thumb piece 17, which overhangs the friction wheel and enables the convenient "flipping" of the element to open position. The wings 4 serve as a windshield for the burner flames and may be provided with the usual air openings 18.

According to the invention the body member 1 is formed with a continuous bottom opening 19 which is in direct communication with the lower ends both of the main chamber 2 and of the spring chamber 8. The opening 19, framed by the side walls 5, the front wall 20 and the rear wall 21 of the body member 1, is normally closed by an inner plate 22 which, albeit having a close or snug fit within the bottom opening, is readily movable in an angular direction whereby its front end will project outward beyond the bottom opening and its rear end will project inward beyond the bottom opening and into the chamber 2. The plate 22 is provided with a pin 23 which projects from its under face and is located near the front end of the plate, i. e. the end which adjoins the front wall 20. The pin 23 projects into adjacent convolutions of the spring 9 and aids in maintaining the spring in proper relation to the plate 22, the outer end of the spring being suitably attached to the plate or to the pin.

The rear wall 21 of the body member 1 terminates at its lower end short of the lower ends of the side walls 5 and the front wall 20. Stated otherwise the rear wall 21 is cut away at its lower end to terminate flush with the bottom wall and to provide a recess 24 which communicates with the space framed or delimited by the portions of the side walls 5 and the front wall 20 which project below the rear wall. This space is normally occupied by a slidably mounted panel 25 which is movable through the recess 24. In order to hold the panel 25 under pressure of the spring 9 against displacement in a direction normal to its plane from between the side walls 5, the panel and cooperating walls may have any appropriate cross section, e. g., dovetail (Figure 5), the slope of the side faces of the panel preferably being continued along its inner end face (Figure 3) and the portions of the side walls 5 which project beyond the rear wall 21 being conformably shaped, i. e., formed with undercut grooves 26 conforming to the dovetail cross section of the panel 25 and continued by a similar groove 27 which extends along the front wall 20.

The panel 25 is slidable in either direction of its plane between the grooved portions of the side walls 5. Its closed position is shown in full lines in Figure 2 and its partially open position is shown in Figures 2 (broken lines) and 3.

When the panel 25 is in closed position the plate 22 is held immediately under it in a parallel plane as indicated by the broken line 22*a* in Figure 3, the inner flat face of the panel 25 having uniform contacting engagement with the lower flat face of the plate 22. This relation of the panel 25 and the plate 22, which obtains during the normal use of the lighter, is maintained by pressure of the spring 9. The strength of the spring 9 and the lightness of weight of the plate 22 are such that although the spring 9 bears upon the plate 22 quite close to its front end its pressure is effective to maintain the plate 22 (the front end edge E of which in its bearing against the inner or under face of the panel serves as a fulcrum) in a plane parallel to the plane of the panel 25, with the outer flat face of the plate in uniform contact with the inner flat face of the panel. This relation, by reason of the close fit of the plate 22 within the walls of the opening 19 and of the panel 25 between the walls 5, against the wall 20 and upon the lower edge of the wall 21 effects a suitably efficient seal against the too rapid access of air to the chamber 2, thereby preventing an undue rate of evaporation of the volatile fluid with which the material M is saturated.

When access is required to the interior of the body member 1 the panel 25 is moved outward in the direction of its plane as shown in Figure 3. As the panel 25 is so moved the plate 22 is progressively angularly displaced under the pressure of the spring 9 about the fulcrum provided by the inner end edge of the panel in its contact with the outer face of the plate. This relation is shown in Figure 3.

If the requirement of access be for the purpose of replenishing the liquid fuel the panel 25 may be partially displaced to the approximate extent shown in Figure 3 to provide a clearance through which the nozzle of the liquid fuel container may be inserted in order to discharge the liquid fuel into the body of the absorbent material M. If renewal of the flint element 10 be required the panel 25 is wholly displaced from the body 1 and the plate 22 is completely removed from the body 1, carrying with it the spring 9 whereupon the worn flint element drops by gravity from the spring chamber 8 and a new flint element is introduced into the upper end of the chamber 8 (the body 1 being in an inverted position) and drops by gravity until its movement is limited by the friction wheel 11. The spring 9 is then introduced into the chamber 8, the plate 22 is introduced into the opening 19 and the panel 25 is pushed home. In such inward movement of the panel 25 the plate 22 is gradually moved, as will be obvious, into its normal position, i. e., into the plane indicated by the broken lines 22*a* and wherein the adjacent faces of the plate and panel are maintained in uniform contact as above described. It will be noted that in connection with the replenishment of the fuel or the substitution of a new flint no preliminary selection is required as between separate closure plugs. All that is required for replenishment of the fuel is to effect the outward displacement of the panel 25 to a suitable extent by which operation suitable immediate access is given to the interior of the chamber 2. If the renewal of

the flint element be required the panel **25** and the plate **22**, the latter carrying with it the attached spring **9**, are removed from the body member **1**.

In restoring the parts to normal relation the plate **22** will first be fitted in any angular relation in the opening **19** and the panel **25** will be inserted through the recess **24** in interfitting relation to and between the grooves **26** and its inward movement continued until it is pushed home. At the completion of its inward movement the panel **25** will have effected the movement of the plate **22** into a parallel plane as indicated by the broken line **22***a* as above described, the plate **22** in such movement progressively fulcruming about the inwardly moving inner or front end edge of the panel **25**. In order to prevent any binding of the convolutions of the spring upon the lower corner of the chamber the portion of the body member **1** in which the chamber **8** is formed has its lower end terminating suitably short of the plate **22** in its normal position, thereby to provide a clearance **29** by virtue of which the lower end portion of the spring **9** will be freely movable into and compressible within the lower end portion of the chamber **8**.

In the following claims words indicative of position, i. e. "vertical," "bottom," "lower," "front" and "inner" are used, for brevity and convenience, with reference to the positions in use, as shown in the accompanying drawing, of the parts so designated.

I claim:

1. A pocket lighter comprising a body member having a main chamber for an absorbent medium in which liquid fuel is held in suspension and a second narrow tubular chamber parallel to the main chamber, the body member having a continuous bottom opening and having front and side walls which project beyond the bottom opening and a rear wall formed to provide a recess adjoining the bottom opening, the front, side and rear walls framing the bottom opening, a plate closely fitting within the bottom opening and being freely movable angularly with respect thereto whereby at its front end it projects outward beyond the bottom opening and at its rear end projects inward beyond the bottom opening and into the chamber, a flint element loading spring confined within the second chamber and having its lower end attached to the front end portion of said plate, and a panel normally fitted and confined within the projecting portion of the side and front walls of the body member and slidably movable in either direction of its plane through said recess and between said side walls, the panel being completely removable from the

body member by sufficiently continued outward sliding movement, the inner end of the panel providing a fulcrum about which the plate may progressively tilt during the sliding movement of the panel relatively to the bottom opening, the movement of the panel to fully closed position causing the plate, under the pressure of the spring, to occupy a position immediately below the panel and in a plane parallel to it in which position the plate is in normal uniform contact with the panel.

2. A pocket lighter as set forth in claim 1 wherein the wall portion of the body member within which the second chamber is formed terminates at its lower end short of the plate, thereby to provide a clearance under the plate to facilitate the movement of the convolutions of the spring into the second chamber in connection with the movement of the plate by the panel as it is pushed home into a plane parallel to the panel.

3. A pocket lighter as set forth in claim 1 wherein one of the walls which frame the bottom opening terminates at its lower end short of the other walls, thereby to provide a passage through which the panel is movable, the panel is of dovetail cross section and the projecting wall portions within which it is mounted are of conformable cross section.

4. A pocket lighter as set forth in claim 1 wherein one of the walls which frames the bottom opening terminates at its lower end short of the other walls, thereby to provide a passage through which the panel is movable, the panel is of dovetail cross section, the projecting wall portions within which it is mounted are of conformable cross section, and the wall portion of the body member within which the second chamber is formed terminates at its lower end short of the plate, thereby to provide a clearance under the plate to facilitate the movement of the convolutions of the spring into the second chamber in connection with the movement of the plate by the panel as it is pushed home into a plane parallel to the panel.

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