

PATENT SPECIFICATION

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538,085

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Complete Specification Accepted: July 21, 1941.



COMPLETE SPECIFICATION

Improvements in and relating to Catalytic Lighters

We, THE LEKTROLITE CORPORATION, 521, Fifth Avenue, City of New York, County of New York, State of New York, United States of America, a Corporation duly organized and existing under the Laws of the State of Connecticut, 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:—

This invention relates to improvements in catalytic lighters, that is, lighters which employ a catalyst for igniting cigarettes and the like, wherein the vapor of alcohol or other vaporizable liquid carried by absorbent material is employed for effecting such action upon the catalyst, in the presence of atmospheric air, as will render such catalyst incandescent, so that the cigarette or the like applied thereto and drawn upon, may be ignited.

The catalytic lighter made in accordance with this invention is characterized in that its housing encloses a fuel reservoir, a catalyst seated in the head portion of said housing, and a fuel valve member positioned between said catalyst and said reservoir, which valve member is operable from without said housing at the bottom thereof. Preferably the head portion of the housing is removably fixed thereon.

It is, therefore, an object of the present invention to provide a catalytic lighter having a minimum of moving parts.

Another object of the present invention resides in the provision of a catalytic lighter in which the head portion thereof is utilized as a holder for the catalyst unit.

A further object of the present invention is to provide efficient sealing means for the compartment holding the fuel, against evaporation of the latter.

The above and further objects and advantageous features are accomplished by the novel and practical constructions, combination and arrangement of parts hereinafter disclosed and illustrated in the accompanying drawings, constituting a part of the disclosure, and in which:

Fig. 1 is a front elevational view of a

[Price 1/-]

catalytic lighter embodying the invention in one of its forms. 55

Fig. 2 is a top view thereof.

Fig. 3 is a bottom view thereof.

Fig. 4 is a central longitudinal sectional view showing the device in closed position.

Fig. 5 is a central longitudinal sectional view showing the device in open position. 60

Fig. 6 is a front elevational view of a catalytic lighter embodying the invention in another of its forms. 65

Fig. 7 is a top view thereof.

Fig. 8 is a central longitudinal sectional view showing the device of Fig. 6 in closed position.

Fig. 9 is a central longitudinal sectional view showing the device of Fig. 6 in open position. 70

Referring to Figs. 1—5 which discloses one example of realizing the invention, there is provided a tubular casing or housing 10 having a head 11. The housing 10 has the fuel compartment 12 which is open at its bottom as indicated by the numeral 13. The head is provided with a passage 14 of varying concentric diameters, which passage communicates with the fuel chamber or compartment 12. 75

This passage 14 is formed in head 11 such that there is provided the reduced opening 15 communicating with the larger opening 16 providing a shoulder 17 upon which is seated a resilient gasket 18 made of any suitable air and fuel vapor sealing material. Opening 16 communicates with a larger opening 19 the juncture 80

of which forms a shoulder 20 against which rests a screen or perforated member 21. Seated upon member 21 is a catalyst pellet or disc 22 made of any suitable material, as for example, spongy platinum composition. Covering the top surface of this pellet 22 is another screen or perforated member 23. The catalyst unit comprising the screens 21, 23 and the pellet 22 are held in place by the 85

press fit of retainer ring 24. Above the catalyst unit the wall 25 of the opening 26 is flared to facilitate guidance of the cigarette (not shown) to be ignited by the catalyst unit. 100

Located within opening 16 is the head 105

27 of a valve, the latter having its stem or shank 28 extending through the gasket 18 and into the fuel chamber 12. The valve head 27 has a conical surface adapted for sealing engagement with the gasket 18. Fixed to valve stem 28 is a sleeve 29 having a flared portion 30 at its bottom providing a seat for a compression spring 31. This spring 31 tends to urge the valve head 27 into the closed position illustrated in Fig. 4. The chamber 12 contains the fuel reservoir 32 preferably made of suitable absorbent material. Passing centrally through reservoir 32 is a valve operating stem 33. Fastened at the upper end of stem 22 is the reservoir retaining flange 34, the horizontal surface 35 of which also acts as a seat for the compression spring 36. The function of the compression spring is to maintain the fuel reservoir 32 in the position shown in Fig. 4, in which position the bottom fuel reservoir retaining flange 37 is in contact with the resilient gasket 38 located in the bottom member 39 thereby shutting off fresh air supply to the fuel chamber when the device is in the inoperative position illustrated in Fig. 4. It is preferable to provide a clearance 40 between the valve operating stem 33 and the valve stem 28 to prevent the valve from opening in the event of the existence of a slight unintentional play of the fuel reservoir unit. The fuel reservoir unit comprises the valve operating stem 33 having the enlarged knob 33¹ at its lower end, and the top and bottom flanges 34, 37 which securely holds the absorbent material 32. Bottom flange comprises the horizontal portion 37, the sleeve portion 37¹ which is held on stem 33 by press fit, and the flared portion 37¹¹ which forms a valve against the gasket 38 when the device is in the inoperative position.

The bottom member 39 threadedly engages the housing sleeve 10 at 45. Bottom member 39 is also provided with a recess 46 for receiving the enlarged stem head 33¹ when the valve is in the operative position illustrated in Fig. 5, in which instance the portion 37¹¹ of bottom retainer 37 is disengaged from gasket 38 permitting air to enter through passages 47 and into the fuel chamber 12, the valve operating stem 35 at the same time pushing upwardly the valve head 27 thereby disengaging the same from the gasket 18 and permitting the mixture of air and fuel to reach the catalyst 22, and causing incandescence thereof when the cigarette applied thereto is drawn upon. Depressing member 33¹ into the chamber 46 by finger pressure will cause longitudinal movement of reservoir 32 and stem 33 placing the device in the

operative position just described.

Referring now to Figs. 6—9 inclusive, which shows another example of realizing the invention, there is provided a tubular casing or housing 50 threadedly engaging at 51 the head 52. Interposed between head 52 and the threaded end 51 of housing 50 is a resilient gasket 53. Housing 50 has the fuel compartment 54 which is open at its bottom 55 forming ridges 56 to facilitate the passage of atmospheric air into the housing when so desired. The head 52 is provided with a passage 57 of varying concentric diameters, which passage communicates with the fuel chamber 54. Passage 57 is formed in head 52 such that there is provided the reduced opening 58 communicating with the larger chamber 59 providing a shoulder or seat 60 upon which rests the resilient gasket 61 made of suitable air and fuel vapor sealing material. Opening 59 communicates with a larger opening 62 the juncture of which forms a shoulder 63 against which rests a screen or perforated member 64. Seated upon member 64 is a catalyst pellet 65 covered by a suitable screen or perforated plate 66, the press fit of retainer 67 retaining the screens 64, 66 and the interposed catalyst in their proper position. Above the catalyst unit the wall 68 of the opening 69 is flared to facilitate guidance of the cigarette to be ignited (not shown) to the catalyst unit.

Located within opening 59 is the head 70 of a valve, the latter having its stem 71 extending through the gasket 61, through the opening 58 and extending into the fuel chamber 54. The valve head 70 has a conical surface adapted for sealing engagement with the gasket 61. Valve stem 71 extends through the entire length of the fuel reservoir 72 terminating at its bottom in an enlarged head 73 fitting into a recess 74 of the bottom cup 75. Reservoir 72 is secured between bottom cup 75 and the top cup 76. Top cup 76 rests against the flanged sleeve 77 which is secured to stem 71 by means of a press fit. The valve 70 is maintained in closed position illustrated in Fig. 8 by means of compression spring 78. Secured near the bottom of housing 50 is a false bottom 79 having a central opening 80 through which extends the secondary valve 81 controlling the air supply. Resting on the bottom member 79 is a resilient gasket 82 which acts as the valve seat for valve 81. Valve stem 83 is fixedly secured in the opening 85 of a knob 84 by means of a press fit. A compression spring 86 maintains the knob 84 in the extended position (Fig. 8) thereby shutting off the air supply to the fuel chamber 54, during the inoperative period of the device.

To operate either form of the lighter illustrated in the drawings, it is only necessary to insert a cigarette into the top opening of the lighter in contact with the top screen or cover of the catalyst unit, 5 press the bottom knob 33¹ or 34 inwardly and draw on the cigarette. This will open the valves as heretofore described and permit atmospheric air to enter the fuel chamber and mix with the fuel vapor and to be drawn through the top valve opening into chamber 16 or 59 and thence into contact with the catalyst causing the latter to incandescence and thereby light the cigarette. 10 15

In the accompanying drawings I have illustrated the invention embodied in some of its practical commercial forms but as this illustration is primarily for purposes of disclosure it will be understood that the invention is not limited to these particular forms of structure and that it may be modified in many respects without departure from the true spirit and scope of the invention as herein defined and claimed. 20 25

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:— 30

1. A catalytic lighter for cigarettes or the like characterized in that its housing encloses a fuel reservoir, a catalyst seated in the head portion of said housing, and a fuel valve member positioned between said catalyst and said reservoir, which valve member is operable from without said housing at the bottom thereof. 35 40

2. A catalytic lighter according to claim 1, wherein said head portion is removably fixed on said housing.

3. A catalytic lighter according to claim 1 or 2, wherein said valve member is connectable with a knob positioned at the bottom of said housing to shift said valve member relatively to said catalyst. 45

4. A catalytic lighter according to any

of claims 1 to 3, wherein said catalyst is spaced from said valve member to provide a fuel chamber therebetween, within which said valve member is shiftable. 50

5. A catalytic lighter according to claim 3 or 4, wherein said fuel reservoir is shiftable with said valve member longitudinally within said housing relatively to said catalyst. 55

6. A catalytic lighter according to claim 5, wherein the shifting of said reservoir and said valve member is performed by movement of said knob. 60

7. A catalytic lighter according to any of claims 3 to 6, wherein air admission means is simultaneously controlled by said knob. 65

8. A catalytic lighter according to claim 7, wherein said fuel valve, member and said air admission means are operable by said knob.

9. A catalytic lighter according to any of claims 3 to 8, wherein the said knob has an extension which may be urged against the action of a spring to unseat the fuel valve members. 70

10. A catalytic lighter according to claim 2, wherein said head portion has an open end for insertion of a cigarette to be lighted. 75

11. A catalytic lighter according to any of claims 3 to 10, wherein said catalyst, said fuel valve member, said fuel reservoir and said air admission means with said knob are alignedly arranged within an elongated housing. 80

12. A catalytic lighter substantially as described and illustrated with reference to the accompanying drawing. 85

Dated this 7th day of November, 1939.

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Chartered Patent Agents,

Jessel Chambers,

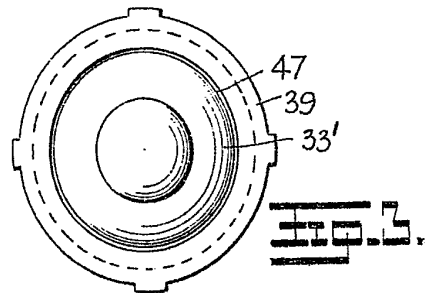
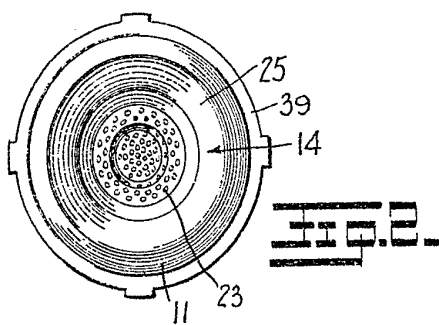
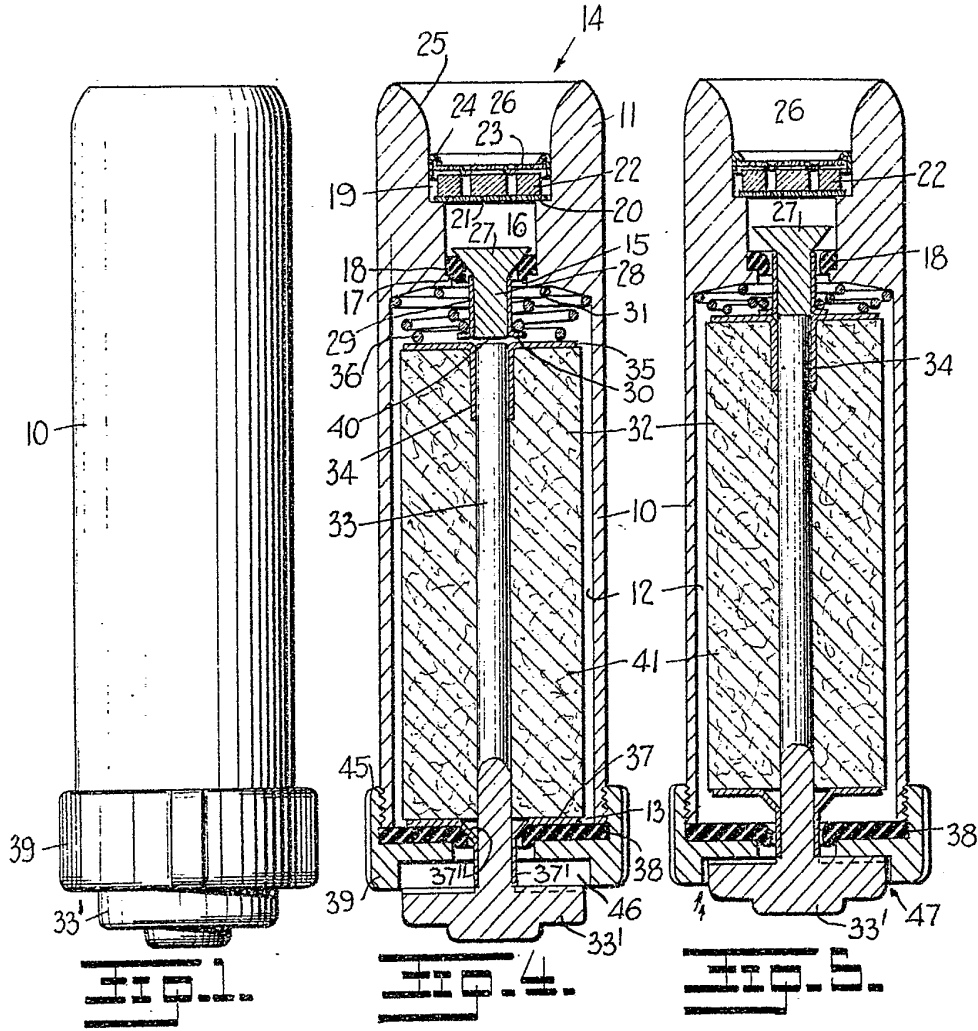
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and Central House,

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[This Drawing is a reproduction of the Original on a reduced scale.]



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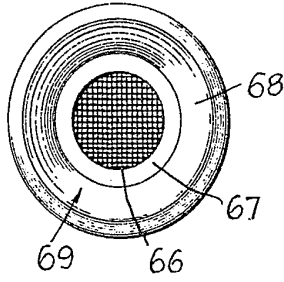
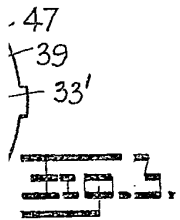
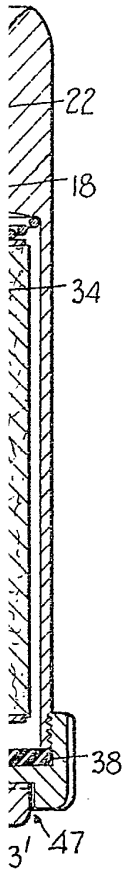
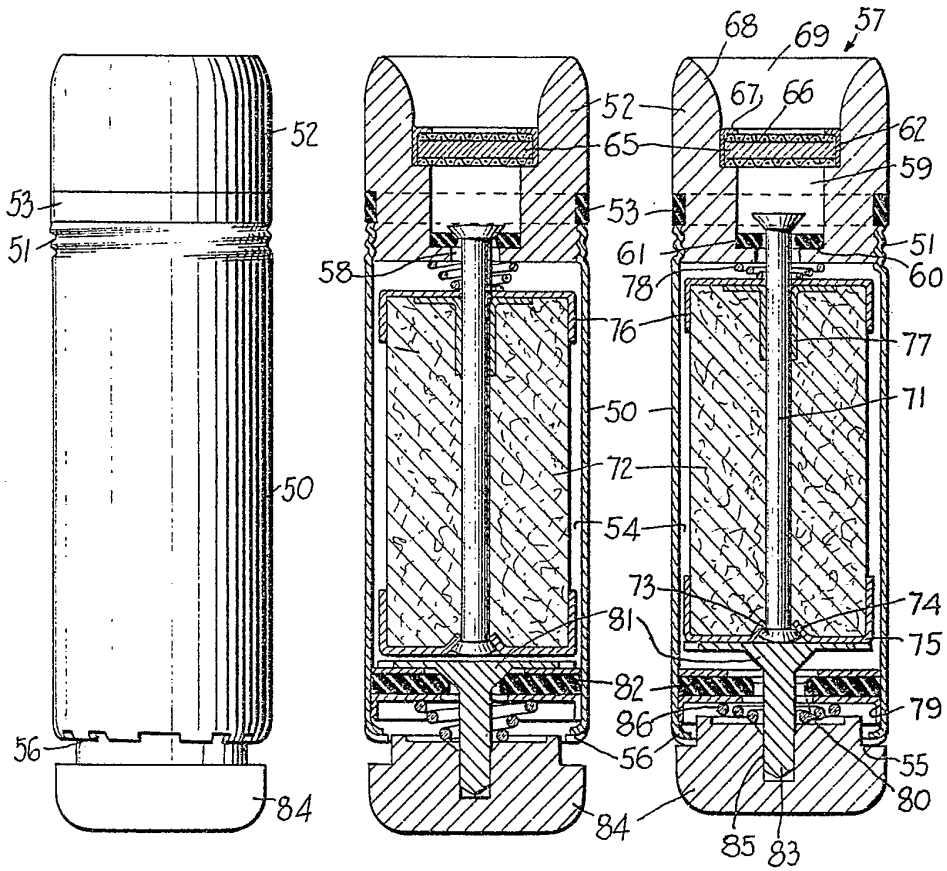


FIG. 7

FIG. 6

FIG. 8

FIG. 9



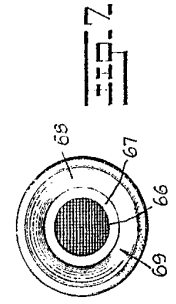


Fig. 6.

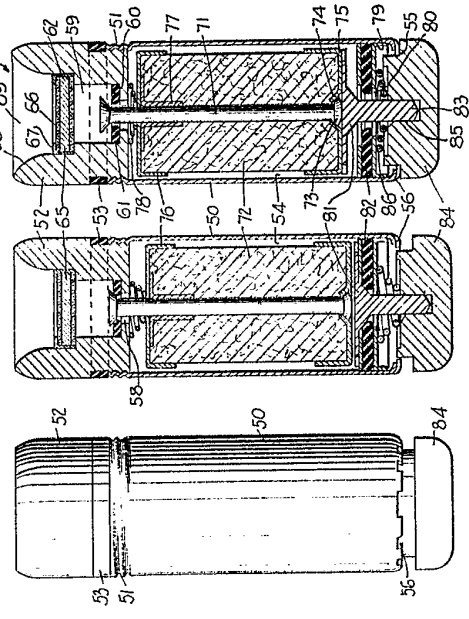


Fig. 5.

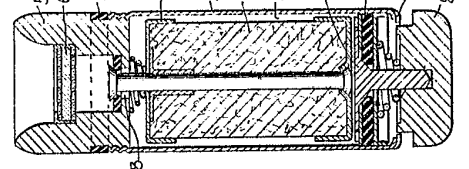
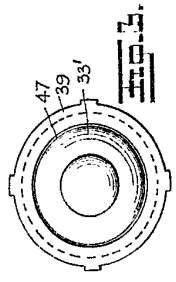
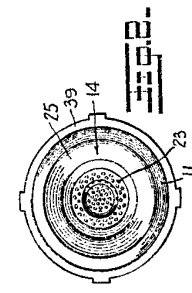
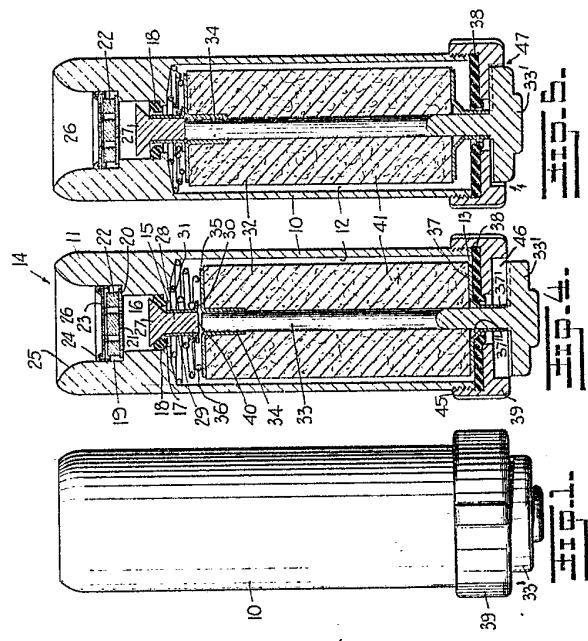
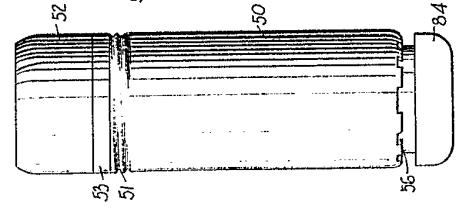


Fig. 4.



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