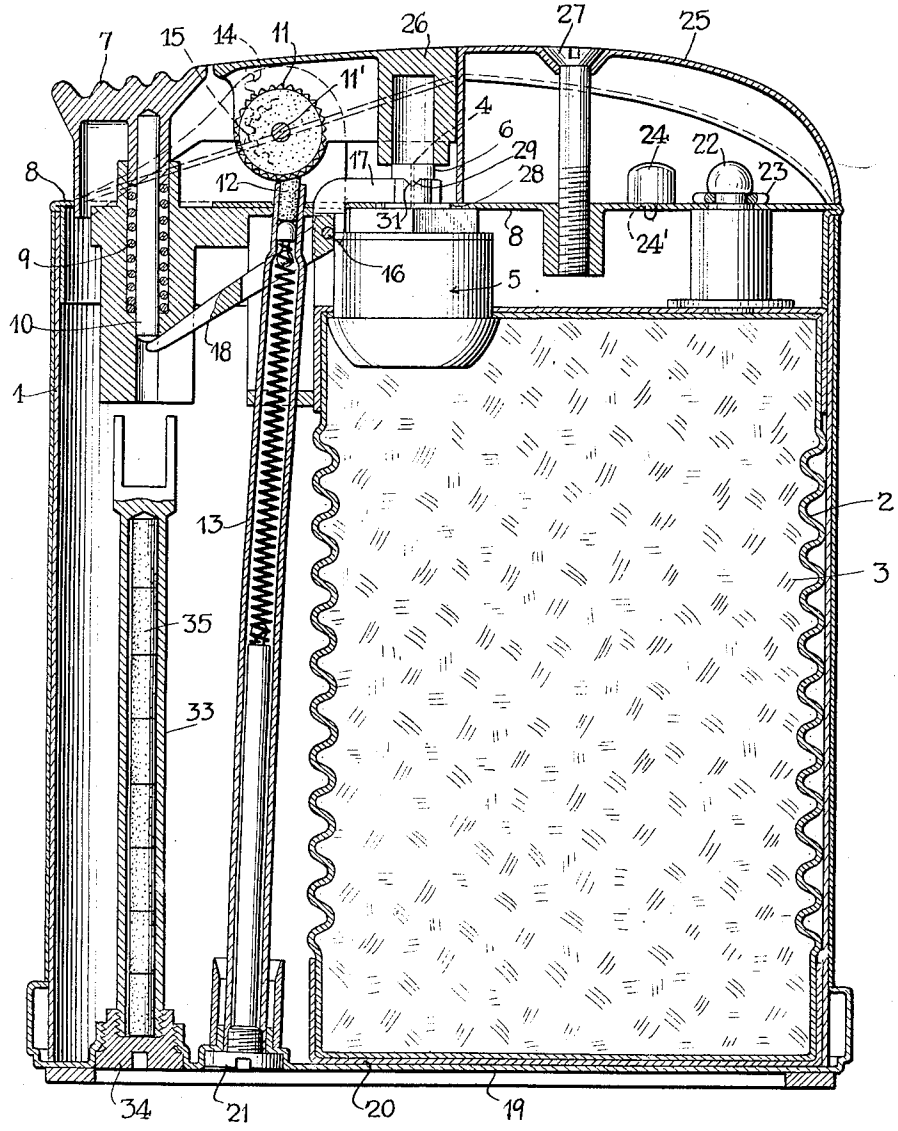
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GAS FUELED CIGAR LIGHTER

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Fig. 1.



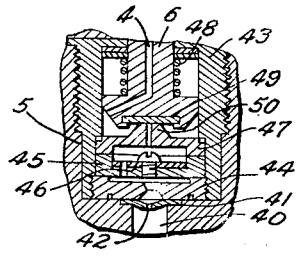


Fig. 5.

INVENTOR.
ALEXANDER L. FLAMM.
BY
Ward, Crosby & Neal
ATTORNEYS.

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Fig. 2.

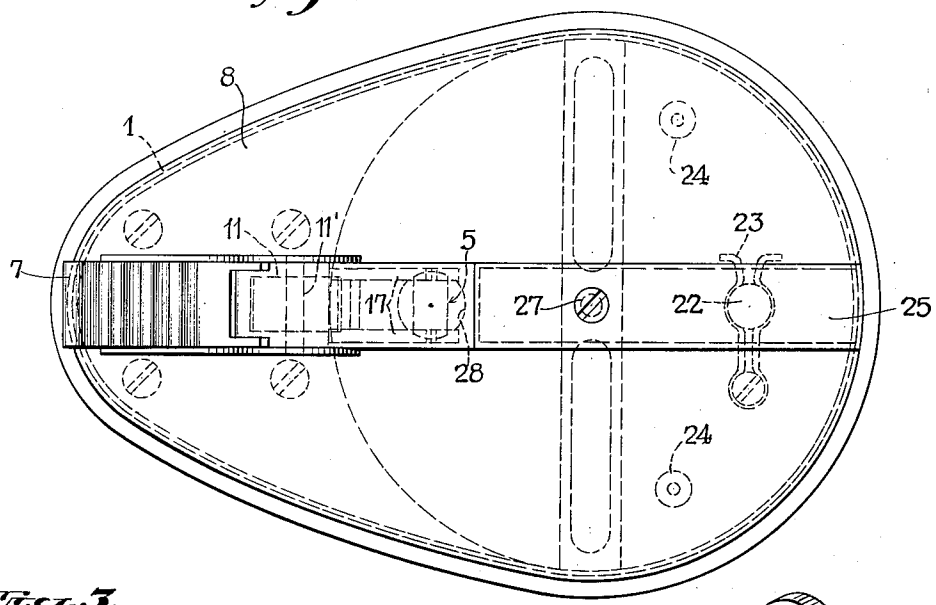


Fig. 3.

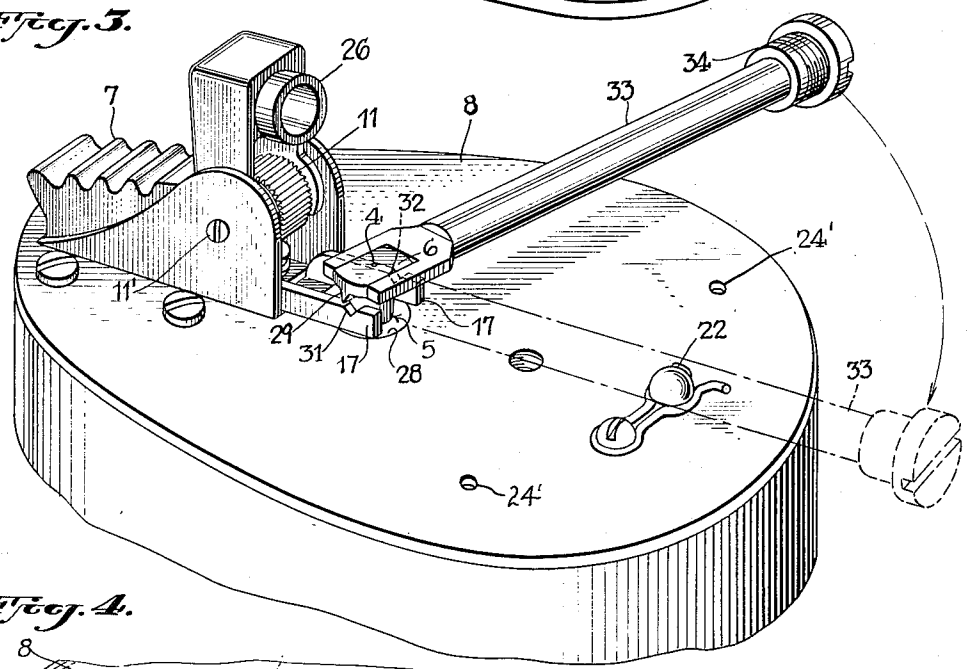
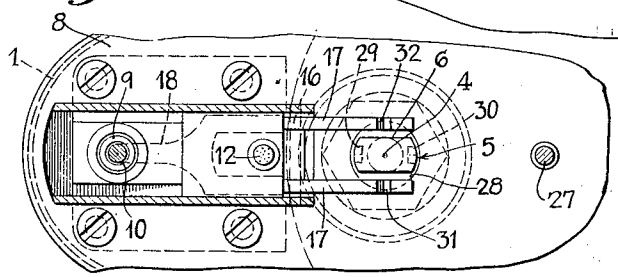


Fig. 4.



INVENTOR.
ALEXANDER L. FLAMM.
BY Ward, Crosby & Neal
ATTORNEYS.

Patented Oct. 16, 1951 2,571,435

UNITED STATES PATENT OFFICE

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GAS FUELED CIGAR LIGHTER

Alexander L. Flamm, Bridgeport, Conn., assignor to Ronson Art Metal Works, Inc., Newark, N. J., a corporation of New Jersey

Application June 11, 1949, Serial No. 98,465

8 Claims. (Cl. 67—7.1)

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This invention relates to gas fueled cigar lighters and aims primarily to provide a lighter of this type wherein a valve for controlling the flow of gaseous fuel to the burner and igniting mechanism of the pyrophoric type are so interconnected with the fingerpiece that facile and reliable ignition of the gas and extinction of the flame may be readily obtained by the user. The gaseous fuel for the lighter is carried within a container disposed in the lighter casing which is constructed in such a manner that the container may readily be removed from the casing for recharging purposes. The above and other features of the invention are more specifically referred to in the description hereinafter contained which, taken in conjunction with the accompanying drawings, discloses a preferred form of gas fueled cigar lighter constructed to operate in accordance with the invention; the disclosure however should be considered as merely illustrative of the invention in its broader aspects.

In the drawings:

Fig. 1 is a vertical sectional view, with certain parts in elevation, of a gas fueled cigar lighter constructed in accordance with the preferred form of the invention;

Fig. 2 is a plan view of the lighter shown in Fig. 1 with the top cover removed;

Fig. 3 is a fragmentary perspective view showing the manner in which the lighter may be disassembled for recharge purposes; and

Fig. 4 is a fragmentary plan view with the fuel valve in a position to be removed for recharge purposes.

Fig. 5 is a fragmentary central section taken through a fuel valve mechanism appropriate for use in the illustrated embodiment of the invention.

The invention is disclosed in the drawings as applied to a lighter having a casing carrying the operating parts and constituted by an outer enclosing shell 1 surrounding a container 2, the latter having a filling 3 of cotton or like fuel absorbent material and containing gaseous fuel, such as propane or butane, under pressure, which is to be ignited at the burner opening 4 after passing through a lift type valve mechanism housed within the burner structure indicated generally at 5. This valve mechanism may be of the type described in my co-pending application Serial No. 74,771 for Gas Fueled Cigar Lighter, filed February 5, 1949, of which the present application is a continuation in part, and which is now abandoned. The burner opening 4 passes through a T-shaped valve head 6 which is reciprocably mounted such that when the valve head is in its lower position, as shown in Fig. 1, the valve is closed to shut off the supply of fuel to the burner, and when the valve head is raised, the valve is opened to admit fuel to the burner.

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As shown in Fig. 5, the gaseous fuel in passing to the fuel valve mechanism, may flow first through a passageway 40 in the housing 5 of the burner structure and then through a pressure reducing diaphragm 41 having a small aperture 42. The fuel valve mechanism is shown as carried within a shell 43, which is threaded into the housing 5, and to further reduce the pressure of the gaseous fuel on its way through the burner structure, preferably the following are employed: An apertured threaded plug 44 at the lower end of shell 33; an apertured cup member 45 above plug 44; an apertured disk 46 on cup 45; and an inverted apertured cup member 47 above the disk 46, these parts 45 to 47 being clamped in position within shell 43 by the threaded plug 44. The valve head or plunger 6 is urged toward its lower closed position shown in Fig. 5, by a compression spring 48 so that a disk 49 on the lower face of valve plunger 6, is urged toward seating engagement with a valve seat 50 carried by the cup member 47.

A depressible fingerpiece 7 is carried by a top wall 8, which latter is slidably engaged with shell 1, and the fingerpiece is urged toward its upper idle position shown in Fig. 1 by a compression spring 9 which surrounds a guide plunger 10 attached to the fingerpiece. A sparking wheel 11 is rotatably mounted on an axle 11' also carried by the top wall 8, and engages a flint 12 contained within a flint tube 13 in the usual manner. To operate the sparking wheel 11, the fingerpiece 7 is provided with teeth 14 which engage toothed elements 15 rotatably mounted about the axle 11', and when the fingerpiece is depressed, the sparking wheel will be rotated through appropriate pawl and ratchet devices (not illustrated) to produce a stream of sparks.

In the form of the invention disclosed, the fingerpiece, sparking wheel and burner are mounted in a row near the top of the structure, with the fingerpiece and burner on opposite sides of the sparking wheel and these parts are so interconnected that the fuel valve is immediately lifted to open it fully during the initial part of the downward movement of the fingerpiece, whereupon by a lost motion engagement between the moving parts, the fuel valve is held open during the remainder of the downward stroke of the

fingerpiece, during which time a stream of sparks continues to be projected toward the burner from the sparking wheel. As shown, this coordination of movement of the operating parts is obtained by means of a bell crank lever pivoted about the pin 16, the forked arms 17 of the lever engaging beneath the T-shaped head 6 of the valve, and the arm 18 of the lever extending beneath the plunger 10 of the fingerpiece 7 in the manner shown in Fig. 1. Immediately upon the depression of the fingerpiece 7, the bell crank lever will be rocked to lift the T-shaped head 6 and open the fuel valve, and as depression of the fingerpiece continues, the fuel valve will be held open by the sliding engagement of the arm 18 of the bell crank lever along the side wall of the plunger 10. When manual pressure on the fingerpiece 7 is released, it is restored by spring 9 to the position shown in Fig. 1, and simultaneously the bell crank lever is restored to the position shown in Fig. 1 and the valve member 6 is closed, by the spring 48 previously described.

In the form of the invention shown, the top plate 8 and container 2 and the operating parts of the lighter carried thereon may be conveniently removed from the shell 1 and thereafter the container may be separated from the top wall by reason of the construction of the fuel burner, thus facilitating recharging of the container. As shown, a closure plate 19 underlies the bottom wall 20 of the container 2 and is fixedly secured to the shell 1 as by brazing or soldering. The top wall 8 of the casing is separately constructed and detachably secured to the outer shell by means of the flint tube 13, the upper end of which is soldered or brazed to the top plate while the lower end is threaded to receive the screw 21 which operates to clamp the flint tube to the closure plate 19 and thus maintain the several elements of the casing in assembled condition.

The fuel container is detachably engaged with the top wall of the casing by means of a locking device comprising a fastening element 22 projecting from the top surface of container 2 and which is releasably engaged by a locking spring 23 on the top plate, as shown in Figs. 1 and 2. Thus, by loosening screw 21 and disengaging the bottom end of the flint tube 13, the top plate 8 and the container 2, together with the various operating parts carried thereon, may be removed from the shell 1 and closure plate 19 by merely lifting them out.

For convenience in separating the container from the top plate after the removal thereof from the outer shell, the T-shaped valve head 6 is rotatably, as well as reciprocably, mounted and may be turned from the position shown in Figs. 1 and 2 into the position thereof shown in Fig. 4. Thus, to separate the container from the top plate, it further is necessary only to disengage the locking element 22 on the container from its associated locking spring 23 disposed upon the top wall. When this is done, the container may be separated from the top plate, the rotated T-shaped valve head 6 freely passing between the forked arms 17 of the bell crank lever and through the opening 28 provided for this purpose in the top wall.

A cover plate 25 of substantially dome-shape overlies the top wall of the casing and is shaped at one end thereof to accommodate the fingerpiece 7, and also a closure cap 26, which latter is pivotally mounted on axle 11', and carries the toothed elements 15, engaged by the teeth 14 on the fingerpiece. Thus, when the fingerpiece is depressed, the closure cap 26 is lifted upwardly to expose the burner opening 4, and when the fingerpiece is in its idle position, as shown in Fig. 1, the cap 26 serves as a protective closure for the burner opening. The dome-shaped cover 25 may be secured to the top plate 8 of the casing by a screw 27 and is provided on its inner surface with guide pins, such as 24, which engage openings 24' in the top plate to properly position the cover thereon.

It further will be noted that the undersurface of the T-shaped valve head 6 is provided with two lips 29 and 30 which are adapted to engage within corresponding slots 31 and 32 formed in the top surface of the forked arms of the bell crank lever when the valve head is in operative engagement with the bell crank lever, as shown in Figs. 1 and 2. For convenience in rotating the valve head when it is desired to remove the container for recharge purposes, a suitable tool 33 is provided within the casing and maintained therein by means of a suitable screw 34, the interior of the tool being hollowed out in order that a series of extra flints, such as 35, may be stored therein. One manner in which the tool 33 may be employed to rotate the T-shaped valve head 6 is illustrated in Fig. 3 wherein the top cover is removed, the tool being moved from the solid outline position thereof to the dot-dash outline position. It is to be understood, of course, that the T-shaped valve head 6 may be turned without removing the top cover simply by depressing the fingerpiece 7, thereby rotating the closure cap 26 to expose the valve head and thereafter inserting the tool 33 vertically through the opening in the top cover to engage the valve head.

While the invention has been disclosed as carried out by a gas fueled lighter of the particular construction described above, it should be understood that changes may be made therein without departing from the invention in its broader aspects within the scope of the appended claims.

I claim:

1. A gas fueled cigar lighter of the character described, including a casing having a top wall detachably engaged therein, a gas fuel container disposed within said casing and detachably engaging with said top wall, said top wall carrying thereon a fingerpiece and a sparking wheel, mechanism interconnecting said fingerpiece and wheel to rotate the latter by the former, a fuel valve carried by said container, mechanism interconnecting said fingerpiece and said fuel valve for opening the latter upon actuation of said fingerpiece, a clamping member extending between said top wall and another wall of said casing, and releasable means for tensioning said clamping member to hold said top wall in operative position with respect to said casing and container, whereby said container, top plate, and the fingerpiece and sparking wheel carried by the latter as aforesaid may be removed as a unit from said casing upon the release of said tensioning means.

2. A gas fueled cigar lighter of the character described, including a casing having a separately constructed top wall, a gas fuel container disposed within said casing, said top wall carrying thereon a fingerpiece and a sparking wheel, mechanism interconnecting said fingerpiece and wheel to rotate the latter by the former, a fuel valve carried by said container and having a fuel burner member exposed exteriorly of said

top plate and adjacent said sparking wheel, said fuel burner member being reciprocable between positions wherein said fuel valve is respectively open and closed, a lever interconnecting said fingerpiece and said fuel burner member and operable upon actuation of the fingerpiece to reciprocate the fuel burner member and open the valve, and a clamping member one end of which is fixed to said top wall and the other end of which is detachably secured to another wall of said casing whereby said top plate and the lighter elements carried thereon may be removed from said casing upon detaching said clamping member from said other wall of the casing.

3. A gas fueled cigar lighter of the character described, including a casing having a separately constructed top wall, said top wall carrying thereon a fingerpiece and sparking wheel and closure cap driven by the fingerpiece, a gas fuel container disposed within said casing, and detachably engaging with said top wall, a fuel valve carried by said container and having a fuel burner member located exteriorly of said top plate and adjacent said sparking wheel and normally covered by said closure cap, said fuel burner member being reciprocable between positions wherein the valve of said valve structure is respectively open and closed, mechanism including a lever interconnecting said fingerpiece and said fuel burner member and operable upon actuation of the fingerpiece to expose the fuel burner member and reciprocate same and open the valve, and a flint tube extending through said casing with the upper extremity thereof secured to said top wall and the lower extremity thereof releasably secured to another wall of said casing whereby said container, top plate and the fingerpiece, closure cap and sparking wheel carried thereby may be removed as a unit from the casing upon the release of said flint tube from said other wall of the casing.

4. A gas fueled lighter of the character described including an enclosing casing having top and side walls, an inner container detachably held within said casing and containing gaseous fuel under pressure, a burner projecting through the top wall of said casing and having a fuel valve of the plunger type housed within said burner between the mouth of the burner and the fuel supply, a standard extending upwardly from the top wall of said casing adjacent the mouth of the burner, a sparking wheel rotatably carried by said standard, a fingerpiece mounted upon the enclosing casing structure in spaced relation to said sparking wheel to move between idle and active positions, actuating members one of which is engaged with said fuel valve and the other of which is in driving relation with said sparking wheel, said actuating members being both in driven relation with said fingerpiece thereby to rotate the wheel and also open the valve by movement of the fingerpiece from idle to active position, said fingerpiece, sparking wheel and actuating members being all carried by the enclosing casing structure to remain in their operative positions with respect to each other and the parts of the casing upon which they are mounted, when said inner container is removed from within said casing.

5. A gas fueled lighter of the character described including an enclosing casing having top and side walls, an inner container detachably held within said casing and containing gaseous fuel under pressure, a burner projecting through the top wall of said casing and having a fuel

valve of the plunger type housed within said burner between the mouth of the burner and the fuel supply, a standard extending upwardly from the top wall of said casing adjacent the mouth of the burner, a sparking wheel rotatably carried by said standard, a fingerpiece mounted upon the enclosing casing structure in spaced relation to said sparking wheel to move between idle and active positions, actuating members one of which is engaged with said fuel valve and the other of which is in driving relation with said sparking wheel, said fingerpiece being positioned in laterally spaced relation to said inner container, said sparking wheel being located intermediate said fingerpiece and said burner, said actuating members being both in driven relation with said fingerpiece thereby to rotate the wheel and also open the valve by movement of the fingerpiece from idle to active position, said valve actuating member comprising a rocking lever extending between said fingerpiece and burner beneath the level of the sparking wheel, said fingerpiece, sparking wheel and actuating members being all carried by the enclosing casing structure to remain in their operative positions with respect to each other and the parts of the casing upon which they are mounted, when said inner container is removed from within said casing.

6. A gas fueled lighter of the character described including an enclosing casing having top and side walls, an inner container detachably held within said casing and containing gaseous fuel under pressure, a burner projecting through the top wall of said casing and having a fuel valve of the plunger type housed within said burner between the mouth of the burner and the fuel supply, a standard extending upwardly from the top wall of said casing adjacent the mouth of the burner, a sparking wheel rotatably carried by said standard, a fingerpiece mounted upon the enclosing casing structure in spaced relation to said sparking wheel to move between idle and active positions, actuating members one of which is engaged with said fuel valve and the other of which is in driving relation with said sparking wheel, said fingerpiece being reciprocably mounted in the top wall of said casing to move toward and from the latter, said sparking wheel being interposed between said fingerpiece and burner, said actuating members being both in driven relation with said fingerpiece thereby to rotate the wheel and also open the valve by movement of the fingerpiece from idle to active position, said sparking wheel actuating member having toothed connection with the fingerpiece, said fingerpiece, sparking wheel and actuating members being all carried by the enclosing casing structure to remain in their operative positions with respect to each other and the parts of the casing upon which they are mounted, when said inner container is removed from within said casing.

7. A gas fueled lighter of the character described, comprising in combination a casing having therein a chamber constructed to hold gaseous fuel under pressure, a depressible fingerpiece, a sparking wheel, and a fuel burner structure mounted in a row along the top wall of said casing with the burner protruding through said wall and the sparking wheel disposed intermediate the fingerpiece and the burner, said burner structure having therein a valve member interposed between the mouth of the burner and the fuel chamber to control the flow of fuel through

the burner, said burner structure being reciprocable between an upper position wherein said fuel valve is open and a lower position wherein said fuel valve is closed, means for mounting said fingerpiece to move between an upper idle position and a lower active position, mechanism interconnecting said fingerpiece and sparking wheel to rotate the latter by the former, a flint tube extending upwardly through said casing to a point underneath said sparking wheel, and a rocking lever mechanism underlying the fingerpiece and sparking wheel, said lever mechanism having a portion extending into the path of downward movement of the fingerpiece, said lever mechanism also spanning said flint tube and extending laterally to said burner structure, said lever mechanism respectively engaging the fingerpiece and burner structure to lift the valve of the burner structure to open position during the downward movement of the fingerpiece while the fingerpiece is actuating said first above-mentioned mechanism to rotate said sparking wheel as aforesaid.

8. A gas fueled cigar lighter of the character described, including a casing having therein a chamber constructed to contain gaseous fuel under pressure, a fuel burner structure extending through the top wall of said casing, said burner structure including a reciprocable fuel valve interposed between the mouth of the burner and said chamber, a sparking wheel, means for mounting said sparking wheel upon the top wall of said casing at one side of said burner structure, a depressible fingerpiece, means for reciprocably mounting said fingerpiece upon the top wall of said casing to move between an upper idle position wherein said valve is closed and a lower active position wherein said valve is open, a closure cap, means for mounting said

closure cap on the top wall of said casing to swing angularly between lower burner covering and upper burner exposing positions, the mounting means for said sparking wheel and closure cap being interposed between the fingerpiece and the burner, mechanism interconnecting said fingerpiece, sparking wheel and closure cap to rotate said wheel and swing said closure cap upwardly to burner exposing position as the fingerpiece moves from its upper idle to its lower active position, said lighter also including a lever mechanism underlying the fingerpiece and sparking wheel, said lever mechanism extending from said fingerpiece past said sparking wheel to the fuel valve and interconnecting the fingerpiece with said valve to open the latter as the fingerpiece moves downwardly to actuate the first above-mentioned mechanism to rotate the sparking wheel and swing the closure cap upwardly as aforesaid.

ALEXANDER L. FLAMM.

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