March 23, 1965 SHINJIRO KOBAYASHI 3,174,309

LIQUID GAS FUELED LIGHTER

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FIG. 1.

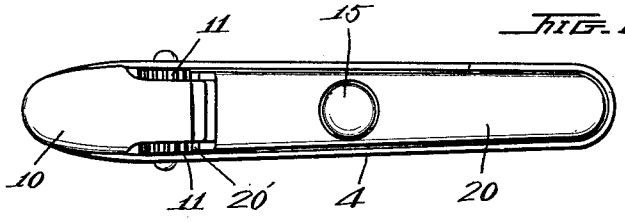


FIG. 2.

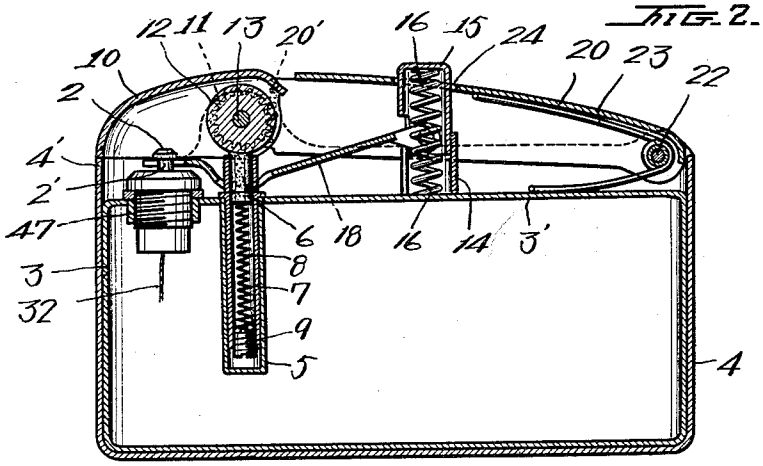
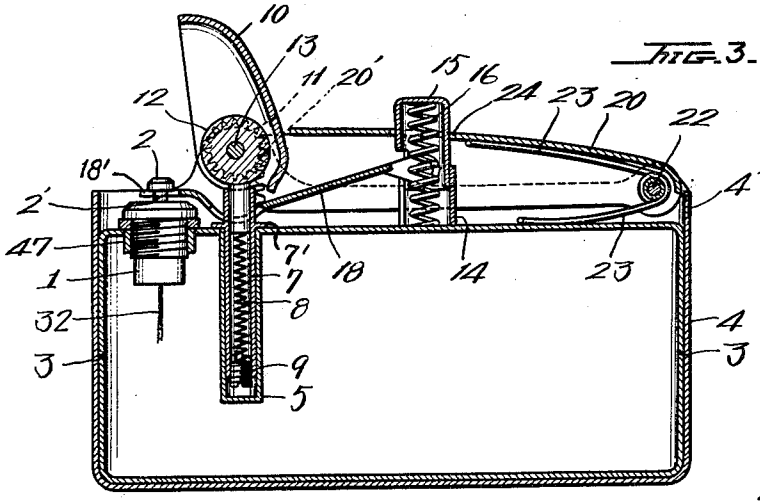


FIG. 3.



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FIG. 4.

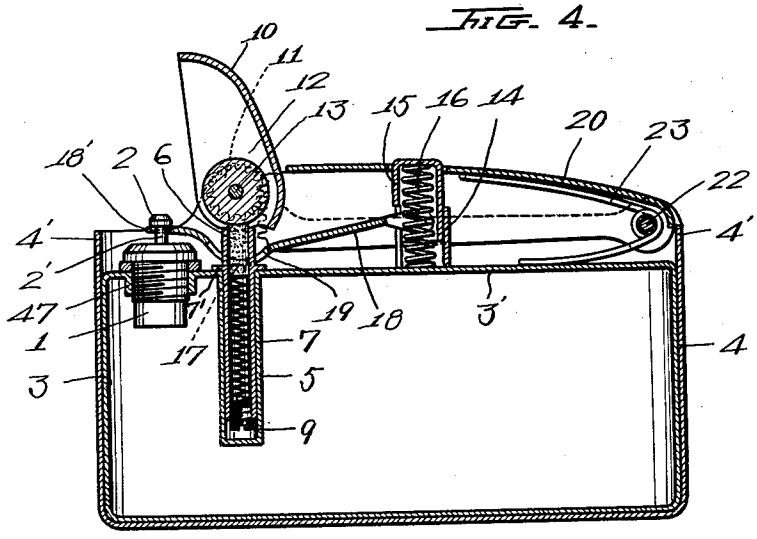
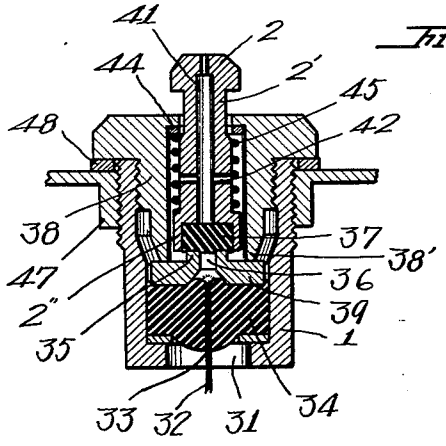


FIG. 5.



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FIG. 6.

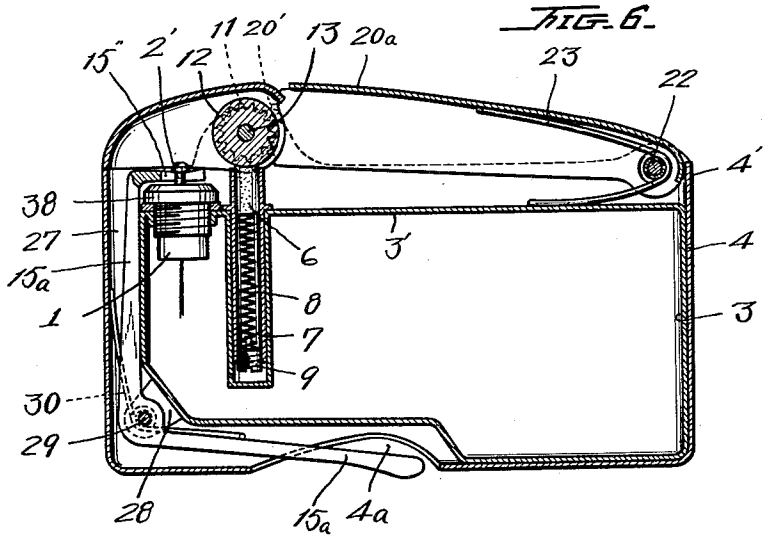
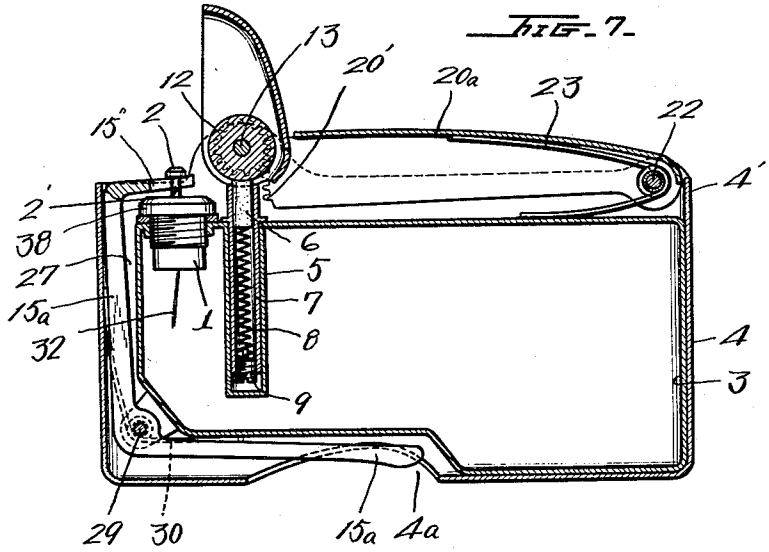


FIG. 7.



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3,174,309

LIQUID GAS FUELED LIGHTER

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Filed Apr. 26, 1961, Ser. No. 105,759
Claims priority, application Japan, Aug. 26, 1960, 35/36,232; Sept. 17, 1960, 35/38,760
16 Claims. (Cl. 67—7.1)

This invention relates to a lighter wherein liquefied petroleum gas is used as a fuel.

More particularly, the present invention is concerned with pyrophoric lighters wherein the fuel is maintained under pressure and supplied as required by means of a valve and wick, and a sparking mechanism is provided to ignite the supplied fuel. The fuel supply and sparking mechanism are operable either simultaneously or individually.

In conventional pyrophoric lighters liquid fuel is provided under atmospheric pressure. Its volatility is relatively low and it is stored in the casing of the lighter. A wick is immersed at one end in the liquid fuel and the other end projects outwardly from the casing to a point adjacent the sparking wheel. As long as there is fuel in the casing, the wick remains saturated and readily ignitible and no valve is provided to close or open the supply of fuel.

In the conventional pyrophoric lighters in which fuel is maintained under pressure no wick is provided and the fuel supplied is usually in excess of the amount required for the purpose of producing a flame. A conventional valve is used to permit the gas to escape when needed and to shut off the flow of gas when it is no longer needed. Two types of lighters are now provided which use valves to deliver the fuel; one type of lighter requires a two-finger operation and the other type requires a single-finger operation. The two-finger operated lighter provides for no mechanical connection between the valve mechanism and the sparking mechanism, whereas the single-finger operated lighter provides for the mechanical interconnection between the valve mechanism and the sparking mechanism but no means to operate the valve mechanism and sparking mechanism individually or simultaneously.

It is a principal object of the present invention to provide a liquid gas fueled lighter in which the gas supply mechanism and the sparking mechanism are operable individually or simultaneously.

A further object of the invention is to provide a single-finger operated liquid gas fueled lighter having no mechanical connection between the valve supply operating mechanism and the spark operating mechanism.

Another object of the invention is to provide a liquid gas fueled lighter having a valve mechanism provided with a wick arranged to deliver a metered quantity of the fuel.

Yet another object of this invention is to provide a gas lighter in which the opening operation of the valve mechanism and spark producing operation are effected separately so as to inspect the operating status separately, and consequently, any obstruction or any defectively operating part in either of the aforementioned mechanisms may be easily ascertained.

In order to attain the above objects, there is provided individual means to operate a rotating mechanism for the sparking mechanism and a closing and opening mechanism for the gas supply valve. The individual means are not directly connected and operated. The operating devices can be operated separately by the same tip end of the finger or can be operated separately using two different fingers.

In one form of the invention the means to operate the sparking mechanism and valve mechanism are adjacent to each other thereby enabling a single-finger operation. In another form of the invention, the means to operate the sparking mechanism and the valve mechanism are oppositely disposed to permit operation in response to opposing forces. In both embodiments, the two mechanisms are mechanically independent of each other, and the valve mechanism is provided with the wick to deliver the metered quantity of the fuel.

Yet another object of the present invention is the provision of an improved lighter of the above character which is of simple design and construction, economical to manufacture, and highly efficient in the accomplishment of its intended purpose.

The objects, advantages and nature of the invention will be fully understood from the following description of the preferred embodiments of the invention, shown, by way of example, in the accompanying drawings, in which:

FIG. 1 is a top view of one embodiment of a gas lighter made in accordance with this invention showing the operating devices for the sparking and valve mechanisms.

FIG. 2 is a sectional side elevation view of the gas lighter of FIG. 1 when not in use, that is, when all the parts of the gas lighter are fully closed and unoperated.

FIG. 3 is another sectional side view of the gas lighter of FIG. 2 showing the lighter with the closure cap thereof rotated to its open position to operate the sparking mechanism.

FIG. 4 is another sectional side view of the lighter of FIG. 2 in its operative position with the closure cap thereof rotated and at the same time the valve mechanism operated to open the same to supply the fuel.

FIG. 5 is a vertical sectional view of the fuel gas supply valve mechanism used in the gas lighter made in accordance with this invention.

FIG. 6 is a vertical sectional side view of another embodiment of a gas lighter made in accordance with this invention, showing operating devices for the sparking mechanism and the valve mechanism different from the operating devices shown in FIGS. 1 to 4, and

FIG. 7 is another sectional side view of the gas lighter shown in FIG. 6 in its operative position with the closure cap thereof rotated to its open position and at the same time the valve mechanism operated to open the same.

In order to simplify the drawings, portions of the lighter and its operating mechanism not essential to an understanding of the invention have been omitted. Further, to relate the two embodiments of the invention to each other, similar characters of reference indicate corresponding parts in all of the figures.

Referring now more particularly to FIGS. 1 to 4 of the drawings, a gas fueled lighter is shown which includes an outer casing 4 having a hollow interior for the reception of a fuel container or tank 3 adapted to be filled with a combustible gas fuel such as butane or propane gas, maintained in the liquid phase under a pressure greater than atmospheric pressure. On the top wall 3' of the container 3, there is provided a pair of gear wheels 11 having positioned therebetween a rotatable serrated sparking wheel 12 of the usual type fixed for rotation as a unit on a shaft 13 which extends between and is supported by two sides of the casing 4. Also rotated on shaft 13 is a burner cap or protective closure member 10 extending to one end of the casing 4 and tank 3 and over a fuel emission valve mechanism contained within a valve casing 1 which is removably secured to the top wall 3'. The valve mechanism provides communication with the interior of tank 3 and includes a spout nozzle or burner head 2.

The gas lighter comprises a first operating mechanism **15** to effect a valve closing and opening for the gas contained in the tank **3**, and a second operating mechanism **20** to open and close the burner cap **10** provided to cover and uncover an upper surface of the gas spout nozzle **2**.

These two mechanisms **15** and **20** are operated as a result of two separate operations by using, for example, the tip end of the same finger, and also both of the aforementioned operations may be effected simultaneously through a single operation by the same tip end of the same finger. The valve mechanism normally impedes the spouting or emission of gas contained in the tank **3** and is closed and opened by the up and down or vertical movements of the gas spout nozzle. The nozzle is constrained to move in a direction perpendicular to the axis of shaft **13** independent of any movement of sparking wheel **12**.

A cylindrical body **5** is provided which is open at its upper end adjacent the valve casing **1** and closed at its other end and is adapted to receive removably therewithin, cylinder or hollow flint tube **7** containing a flint **6** and a coiled spring **8** which bears on the flint so that the flint projects outwardly from the mouth end of the cylinder **7** into engagement with the sparking wheel **12**. Cylinder **7** is opened at its lower end through which the coiled spring **8** is inserted, and a removable screw-threaded plug **9** is threaded into the lower end of the flint tube **7** to hold the coiled spring **8** and close the flint tube. By means of this spring **8**, the flint **6** is always pressed upwardly. Flint tube **7** is removable from body **5** to facilitate renewing of the flints and is provided with a flange portion **7'** to locate and facilitate its positioning in body **5** to position the flint in its proper position under the sparking wheel **12** and forms a bearing surface for a purpose to be discussed hereinafter. Flint **6** is in abrasive engagement with the sparking wheel **12**. The burner cap **10**, the gear wheels **11** and the sparking wheel **12** are fixed on the shaft **13** so as to rotate together as a unit with the flint in engagement with the sparking wheel to provide sparks upon rotation of cap **10** and uncovering of burner head **2** whether or not fuel is emitted therefrom.

The first operating mechanism **15** includes a first cylindrical member guided by a second cylindrical or supporting and guiding member **14** positioned on the upper surface or top wall **3'** of tank **3** of complementary cylindrical shape. Member **15** is provided with a base portion forming a finger engaging means. Positioned within cylindrical members **14** and **15** is a compression spring **16** for maintaining members **14** and **15** in a separated condition and adapted to permit member **15** to be moved into closer engagement with member **14** to move the burner head **2** into its open position as will be explained hereinafter. The first operating mechanism is shown as being movable within member **14**, but it is understood that all that is necessary is to have mechanism **15** and member **14** movable relative to each other and retained against separation from each other.

A lever **18** is provided which has one end thereof pivotally coupled to mechanism **15** passing through a vertical slot in cylinder wall **14** so that the one end moves as a unit with mechanism **15** and pivots as mechanism **15** moves vertically and has the other end thereof provided with a pair of forked or bifurcated ends **18'** for engagement with the neck part **2'** of burner head **2**. Lever **18** has an arched intermediate portion **17** provided with an enlarged oval-shaped opening **19** through which passes a neck portion of the hollow flint tube **7** extending outside of tank **3**. Lever **18** is rocked about intermediate portion **17** to raise the ends **18'** in response to movement of mechanism **15** so as to compress spring **16** and is effective to raise the burner head **2** to dispense metered quantities of fuel. Portion **17** is supported by and rocks on the flange **7'** of flint tube **7**.

By lowering the operating member **15**, nozzle **2** is moved upwardly by means of the lever **18** which has the support point **17** adjacent to the port of the nozzle so as to open the valve of the valve mechanism.

This lever **18** is formed with the hole or opening **19** at its intermediate part and is fitted around the cylinder **7**. The forked part **18'** formed at one end of the lever **18** is fitted around a neck part **2'** of the nozzle **2** and other end of the lever **18** is pivotally attached to the inner side of the operating mechanism or member **15** through cut-off parts in the operating member **15** and in the cylindrical supporting member **14**. Accordingly, by pressing down the operating member **15**, the forked end **18'** at the end of the lever **18** is raised so as to lift the nozzle **2**, and consequently the valve contained in the valve casing **1** is opened to spout from the nozzle **2** combustible gas contained in the tank **3**.

The second operating mechanism or member **20** is provided at one end thereof with gear rack teeth **20'** geared with the gear wheels **11** to operate the sparking wheel **12** and rotate the burner cap **10**, and the other end of the second operating mechanism is pivoted on a shaft **22** mounted on an inward side near the end of the upper peripheral edge **4'** of the outer casing **4** at the end opposite valve-casing **1** and burner head **2**. The second operating member **20** is spring-biased in an upward direction by means of a torsion spring **23** which has one leg pressing against the underside of member **20** and the other leg pressing against the top wall **3'** of the tank.

Rack **20'** and spring **23** cooperate with the second operating member **20** to hold the burner cap **10** in its closed position, and when the operating member **20** is pressed down against the action of the spring **23**, the force thereof is overcome and the gear wheel **11** is rotated by means of the rack **20'** to rotate the burner cap **10** to its upstanding or open position to expose a mouth part of the nozzle **2**, and at the same time in the usual manner the sparking wheel **12** is turned to produce a spark as a result of the friction between the flint **6** and the sparking wheel **12**. Rack **20'** and gear wheel **11** form a drive connection for rotation of sparking wheel **12** when operating member **20** is actuated.

The operating member **20** is formed with a through hole **24** at a position in alignment with and corresponding to that of the first operating mechanism or member **15** and the upper end of the operating member **15** projects through the through hole **24** and is free of any connection with the second operating member **20**. Consequently, when the second operating member **20** only is pressed down by the use of the end of the finger, the burner cap **10** is moved to its open upstanding position as shown in FIG. 3 and at the same time the sparking wheel **12** is rotated independently to produce a spark. Also, when the first operating member **15** only is pressed down the tip end of the bifurcated ends **18'** of lever **18** is raised so as to lift the nozzle **2** and the valve is opened to discharge gas contained in the tank **3**. When the operating members **15**, **20** are pressed down simultaneously by the same end of the finger, an ignition is caused simultaneously wtih the opening of the burner cap.

The lever **18** is effective to raise the burner head **2** solely in response to the depression of member **15**. The lever **18** is provided with the arched portion at **17** to form a fulcrum portion for the lever; the hole **19** is positioned at the fulcrum portion and the portion of the flint tube which extends from tank **3** passes through the opening **19** to retain lever **18** in position and limit the extent of its rocking movement. The flint tube provided with the flange **7'** rests on top wall **3'** of tank **3**, and the arched portion **17** is in engagement solely with the aforesaid flange. When member **15** is depressed, the end or arm of lever **18** coupled thereto pivots and is lowered and the arm or end coupled to the neck part **2'** pivots thereabout and is raised as a result of the rocking of lever **18** about portion **17**. The two diameters of the oval-shaped opening **19** are of

a larger diameter than the outside diameter of the flint tube and of smaller diameter than the flange thereof to prevent any buckling of the arms of lever 18 as the arms are lowered and raised in response to movement by member 15. Lowering of member 15 raises and pivots the bifurcated ends 18' on the neck portion 2'. Portion 17 and the flange of the flint tube form a hinge connection such that movement of the burner head in a vertical direction transverse to the axis of shaft 13 is controlled solely by the first operating mechanism or member 15 and is free of any control by the second operating mechanism 20 and its appurtenant parts.

Referring now more particularly to FIGS. 6 and 7, another embodiment is shown which includes an operating member 20*a* for operating the sparking mechanism with the mechanism for controlling the supply of the combustible gas being arranged at a different plane to effect operation of the sparking mechanism and fuel supply by two separate fingers or parts of the hand. The portions of the lighter similar to the lighter shown in FIGS. 1 to 4 will be designated with the same reference numerals. Operating member 20*a* performs the functions of the second operating mechanism 20 of FIGS. 1 to 4 but is free of any opening for the reception of a member such as member 15. The operating member 20*a* in a manner similar to operating member 20 is pivotally mounted at its base part by the shaft 22 on an inner side near the end of the upper peripheral edge 4' of the outer casing 4. Spring 23 is wound around the shaft 22 so as to press upwardly the underside of the end of the operating member 20*a* remote from the sparking wheel 12 and also to press downwardly against the upper surface plate 3' of the gas container 3. Gear rack teeth 20' are also formed at the tip end of the operating member 20*a* and geared with at least one gear wheel 11 which is fixed on the shaft 13. Consequently, when the operating member 20*a* is pressed downwardly, the shaft 13 is turned by means of the rack 20' and gear wheel 11 and the sparking wheel 12 is turned and at the same time the burner cap 10 is moved to its open position and stands up.

The tank 3 is slightly recessed at the side end thereof adjacent to the valve casing 1 and at the base portion opposite to the valve mechanism and adjacent to the last-mentioned side to leave a space 27. In this space 27, an L-shaped operating member or lever 15*a* is arranged and at its bent part or portion at which the two legs are joined, the L-shaped lever is pivotally attached to a shaft 29. Bearing 28 is provided at one corner of the gas tank 3 and is coupled thereto for fixedly supporting the shaft 29. One arm of the operating member 15*a* is positioned at the inner side of an opening 4*a* formed at the lower side of the outer casing 4 and the end of finger is adapted to be inserted through the opening 4*a*. The end 15'' on the other arm of the operating member 15*a* is forked or bifurcated and holds neck 2' of the nozzle 2. The torsion spring 30 spring biases member 15*a* and is wound around the shaft 29 having one leg pressing against the underside of the one arm of lever 15*a* and the other leg pressing against an inside wall of casing 4 and serves to hold the operating member 15*a* at its original position in a direction with the one arm away from the base of tank 3 and the other arm with the bifurcated ends towards the side of tank 3 with nozzle 2 in its closed position.

Operation of the lighter is accomplished by placing the thumb on the upper side of the operating member 20*a* and also the fore-finger or the middle finger on the lower operating member 15*a* so as to grip the lighter in the palm of the hand. Thus, when the operating end of the operating member 15*a* is pressed by the fore-finger or the middle finger, the forked end 15'' moves the nozzle 2 of the valve casing 1 in a vertical direction so as to open the valve for spouting gas contained in the tank 3 through the burner head 2. Also, when the operating member 20*a* is pressed down by tip end of the thumb, the gear wheel 11 geared with the rack 20' is turned and at the same time the sparking wheel 12 is turned, and consequently as a result of the friction between the sparking wheel 12 and the flint 6, a spark is produced so as to cause the ignition of gas spouting from the burner head or nozzle 2. In this case, the burner cap 10 is moved to its vertical position and stands up together with the rotation of the sparking wheel 12 to open the nozzle 2.

In this embodiment, the handling of the lighter is simplified since the two forces are applied in opposite directions to each other and are effective to operate members 15*a* and 20*a* to bring the fuel and spark together. It is not necessary to apply forces in two transverse directions.

Referring now more particularly to FIG. 5, the construction of the interior parts of the valve mechanism includes an outer cup-shaped valve casing 1 having at the middle part of the lower base portion thereof an opening 31 which is in communication with the combustible gas in tank 3 when coupled thereto. An expandible resilient member 34 is positioned at the upper part of the opening 31, and a wick 32 is fitted within and passes through a hole 33 provided in member 34. A movable stand 39, having at its center portion and upwardly extending projection 35 formed at the central part thereof with a gas hole 36, is positioned upon the resilient member 34. A screw-threaded cover 38 is formed on its interior with a fuel receiving cylinder provided at its lower end with a receiving cylinder leg 38' and is screw-threaded upon the upper end of the valve casing 1 so as to press and suitably to hold the resilient member 34 under a desired amount of compression. The nozzle 2 is provided with a packing 37 at its lower end which is fitted in an enlarged part 2'' provided with a special recessed portion formed at the base of the screw-threaded cover 38.

The burner head or nozzle 2 has a gas passage 41 at its center part axially aligned with holes 33 and 36 and transversely disposed side holes 42 at its side surface; the passage 41 and holes 42 together form gas passages for discharging the combustible gas in liquid phase. Positioned between an outside flange portion on the enlarged part 2'' at the lower end of the nozzle 2 and a washer 44 held against an inner flange portion on cover 38 is a compression spring 45 so as to bias the burner head or nozzle 2 toward its closed position in a downward direction. The coiled spring 45 serves to press the packing 37 provided at the lower end of the nozzle 2 against the projected part 35 of the movable stand 39. The movable stand 39 presses in a downwardly direction against the resilient member 34 which is arranged therebelow so as to compress the hole 33 narrowing the opening thereof, and the wick 32 is also compressed as a result of the radial pressure applied by resilient member 34 so as to impede the spout or emission of fuel from burner head 2. Accordingly, when the burner head or nozzle 2 is moved upwardly to remove the pressure applied by the movable stand 39 against the resilient member 34, the resilient member 34 is again expanded to decrease the pressure applied against the wick 32 passing through the hole 33 so as to release the wick from tight engagement with the resilient member 34 to spout gas freely through the wick.

The valve casing 1 is threaded into a screw-threaded cylinder 47 provided on the upper surface plate or top wall 3' of the tank 3 and is seated tightly by means of a packing or washer 48.

When lever 18 raises the nozzle or burner head 2, the force of spring 45 is overcome and fuel passes through the wick 32 from tank 3, through hole 33 in resilient member 34 which is impervious to saturation by the fuel and into hole 36 in movable stand 39. When nozzle 2 is raised, a space is provided between the top of the movable stand 39 and the bottom of the packing 37 to permit the entry of the fuel therebetween and into the space provided between the inner cylindrical surface of cover 38 and the outer surface portion of the part of the nozzle projecting inwardly of the cover, after which the fuel enters into the gas passage 41 by means of the trans-

verse openings 42. Suitable additional packing is provided in the valve mechanism to insure that no fuel leaks past any parts other than through the intended fuel path provided when spring 45 is compressed on opening of nozzle 2. Once the nozzle 2 is raised there is a direct fluid communication between the fuel in tank 3 through the wick 32, gas hole 36 and side holes 42 into gas passage 41 for emission through the opening in nozzle 2. The only absorbent material used is the wick 32. Cover 38 and casing 1 may be easily disassembled from each other to reach any of the parts forming the valve mechanism. Adjustment of cover 38 within casing 1 may be effected to adjust inner or frusto-conical end 38', longitudinally of the housing 1, and thus to adjust the position of the stand 39. In turn, this adjusts the pressure exerted on the block 34 having the wick 32 extending through its opening 33, and thereby controls or meters the quantity of fuel delivered to the passage 41. Adjustment of cover 38 is effected, of course, by rotation in the housing 1 in which it is threaded.

In the examples shown in the drawings, the combustible fluid is discharged by moving the nozzle 2 upwardly. However, the valve mechanism may be modified to discharge gas by moving the nozzle 2 downwardly. Also, the arrangement of the two operating members or mechanisms is not limited to the embodiments shown in the drawings, and it of course may be selected as will the position and the direction of the operating members as long as the operations are effected preferably by the fingers.

While there has been described what is at present considered to be the preferred embodiments of this invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the scope of the invention.

What is claimed is:

1. A lighter of the character described, comprising a casing, a fuel tank in said casing, a valve on said fuel tank over the front end thereof, said valve having a burner head which lifts to open the valve and lowers to close the valve, a lifting lever pivotally supported intermediate its ends on said fuel tank and having one end which engages the burner head, the other end thereof adapted to be actuated to rock said lifting lever about its pivot to lift said head, a flint tube carried on said fuel tank adjacent the burner head, a flint situated in said flint tube, sparking wheel means mounted in said casing, a spring in said flint tube engaging said flint for urging thereof in abrasive engagement with said sparking wheel means, a second operator operatively associated with said casing and operable independently of said first operator, said second operator being geared to said sparking wheel means to cause said sparking wheel means to turn against said flint when said second operator is operated, said valve including means to deliver a metered quantity of fuel solely when said first operator is operated, said valve including a cup-shaped valve casing, a resilient member disposed in the interior of said casing and having a central opening, a movable stand positioned on top of said resilient member freely movable thereupon, said movable stand having an upwardly extending projection provided with a gas hole in registry with said central opening, a wick supported at one end in said central opening passing therethrough into said gas hole, an externally threaded cover member screwed into a cooperating screw thread formed in said casing, said cover member overlying said movable stand to press it downwardly to compress said resilient member and vary the diameter of said central opening, the degree of compression of said resilient member being adjustable by screwing said cover member up and down, said cover member having a flanged opening in the top surface thereof, said burner head including a neck portion passing through said flanged opening into said casing and an enlarged part overlying the upwardly extending projection, said burner head having a gas passage extending the length of said neck portion, a packing retainably receiving said enlarged part closing said gas passage thereat and overlying said gas hole, said burner head being axially movable and inwardly spring biased to maintain said packing in engagement with said upwardly extending projection to seal off said gas hole from said gas passage, transverse passages in the wall of said neck portion providing communication between the interior of said cover member and said gas passage, said lifting lever being effective to lift said burner head to provide communication between said gas hole and the interior of said cover member through a passageway formed between said upward extending projection and said packing, the opening of said passageway permitting the passage of the metered quantity of fuel delivered when said first operator is operated, said burner head being free of any connection with said cover member and movable independently thereof, whereby rotation of the cover member is effective to vary said central opening to control the metered quantity of fuel delivered by said wick into said gas hole.

2. A lighter according to claim 1, wherein said second operator includes an operating member pivotally connected with an end of said casing remote from said sparking wheel means and having a through hole, and further including a first operator operatively engaging said other end of said lifting lever and including a movable member connected with said lifting lever and movable through said through hole free of any interference with said operating member whereby to effect movement of said operating member and movable member simultaneously or individually by means of a single finger.

3. A lighter according to claim 2, wherein said flint tube is provided with a flange portion for location of said flint tube in said tank for abrasive engagement of said flint with said sparking wheel means, said lifting lever having first and second arms and an arched intermediate portion, said arched portion having an opening therein of a diameter larger than the diameter of said flint tube and of a diameter smaller than the diameter of said flange, whereby to retain said lifting lever in position with said arched portion on said flange.

4. A lighter according to claim 3, wherein said first arm has its end portion bifurcated for engagement with a neck portion of said burner head, said arched portion forming a fulcrum portion and together with said flange forming a hinge connection for said lifting lever, and said second arm being pivotally connected with said movable member to rock said arched portion on said flange to raise said first arm to lift said burner head when said movable member is depressed.

5. A lighter according to claim 4, wherein said first operator includes a guide member fixed on said tank, said flint tube being positioned between said valve and said guide member, a compression spring coupling said movable member to said guide member and together therewith controlling the movements of said movable member.

6. A lighter according to claim 3, wherein said opening in the arched portion is elongated, the neck portion of said flint tube passing through said elongated opening, to control the movement of said lifting lever on said flange.

7. A lighter of the character described, comprising a casing, a fuel tank in said casing, a valve on said fuel tank near the front end thereof, said valve having a burner head which lifts to open the valve and lowers to close the valve, a lifting lever pivotally supported, intermediate its ends, on said fuel tank and having one end which engages the burner head, a first operator operatively associated with the other end of said lifting lever to rock the same to lift said burner head, a flint tube carried on said fuel tank adjacent the burner head, a flint situated in said flint tube, sparking wheel means rotatably mounted in said casing, a spring in said flint tube engaging said flint for urging thereof in abrasive engagement with said sparking wheel means, a second operator operatively associated with said casing and operable independently of said first operator, said second operator being geared to said spark-

ing wheel means to cause said sparking wheel means to turn against said flint when said second operator is operated, said valve including means to deliver a metered quantity of fuel solely when said first operating mechanism is operated, and wherein said valve includes a cup-shaped valve casing, a resilient member disposed in the interior of said casing and having a central opening, a movable stand positioned on top of said resilient member freely movable thereupon, said movable stand having an upwardly extending projection provided with a gas hole in registry with said central opening; a wick supported at one end in said central opening passing therethrough into said gas hole, an externally-threaded cover member screwed into a cooperating screw thread formed in said casing, said cover member overlying said movable stand to press it downwardly to compress said resilient member and vary the diameter of said central opening, the degree of compression of said resilient member being adjustable by screwing said cover member up and down, said cover member having a flanged opening in the top surface thereof, said burner head including a neck portion passing through said flanged opening into said casing and an enlarged part overlying the upwardly extending projection, said burner head having a gas passage extending the length of said neck portion, a packing retainably received in said enlarged part closing said gas passage thereat and overlying said gas hole, said burner head being axially movable and inwardly spring biased to maintain said packing in engagement with said upwardly extending projection to seal off said gas hole from said gas passage, transverse passages in the wall of said neck portion providing communication between the interior of said cover member and said gas passage; said lifting lever being effective to lift said burner head to provide communication between said gas hole and the interior of said cover member through a passageway formed between said upwardly extending projection and said packing, the opening of said passageway permitting the passage of the metered quantity of fuel delivered when said first operator is operated, said burner head being free of any connection with said cover member and movable independently thereof, whereby rotation of the cover member is effective to vary said central opening to control the metered quantity of fuel delivered by said wick into said gas hole.

8. A lighter according to claim 7, wherein said cover member includes a fuel receiving cylinder enclosing said neck portion and said enlarged part, a reduced extension formed at the lower end of said fuel receiving cylinder in engagement with said movable stand controlling the compression of said resilient member when said burner head is lifted to discharge fuel.

9. A lighter according to claim 8, including a resilient spring surrounding said neck portion and having one end bearing on the flange portion of said flanged opening and the other end bearing on said enlarged part to force said packing into engagement with said upwardly extending projection to compress said resilient member for all positions of variation of said cover member to compress said wick and seal off fuel communication between said tank and said gas hole.

10. A lighter according to claim 1, wherein said second operating mechanism includes an operating member pivotally connected with an end of said casing remote from said sparking wheel means, and wherein said lifting lever constitutes a first operating mechanism and includes an L-shaped lever pivotally coupled to said tank, said first and second operating mechanism being free of any interference with each other whereby to effect lifting of said burner head and rotation of said sparking wheel means independently of each other.

11. A lighter according to claim 10, wherein said tank is provided at the base portion thereof with a recess, said L-shaped lever including a first leg received within said recess and a second leg provided with a forked end for engagement with the neck portion of said burner head, a shaft fixed to said tank pivotally coupling thereto said lever, a torsion spring carried by said shaft normally biasing said first leg away from said tank and said second leg towards said tank to maintain said burner head in its closed condition, so that movement of said first leg towards said tank by means of a single finger is effective to overcome the bias of said torsion spring and lift said burner head.

12. A lighter according to claim 11, wherein said casing is provided with a through opening in the base thereof to provide access to said first leg and is provided with a space in the side thereof adjacent to said burner head for the reception of said second leg.

13. A lighter according to claim 12, wherein said flint tube is provided with a flange portion for location of said flint tube in said tank for abrasive engagement of said flint with said sparking wheel means.

14. A lighter according to claim 13, including a bent portion coupling said forked end to said second leg, said bent portion being movable with the movement of said first leg, whereby forces applied in opposite directions to said first and second operating mechanisms are effective to provide the fuel and sparking therefor.

15. A lighter as claimed in claim 10, wherein said valve includes a cup-shaped valve casing, a resilient member disposed in the interior of said casing and having a central opening, a movable stand positioned on top of said resilient member freely movable thereupon, said movable stand having an upwardly extending projection provided with a gas hole in registry with said central opening; a wick supported at one end in said central opening passing therethrough into said gas hole, an externally-threaded cover member screwed into a cooperating screw-thread formed in said casing, said cover member overlying said movable stand to press it downwardly to compress said resilient member and vary the diameter of said central opening, the degree of compression of said resilient member being adjustable by screwing said cover member up and down, said cover member having a flanged opening in the top surface thereof, said burner head including a neck portion passing through said flanged opening into said casing and an enlarged part overlying the upwardly extending projection, said burner head having a gas passage extending the length of said neck portion, a packing retainably received in said enlarged part closing said gas passage thereat and overlying said gas hole, said burner head being axially movable and inwardly spring biased to maintain said packing in engagement with said upwardly extending projection to seal off said gas hole from said gas passage, transverse passages in the wall of said neck portion providing communication between the interior of said cover member and said gas passage; said lifting member being effective to lift said burner head to provide communication between said gas hole and the interior of said cover member through a passageway formed between said upwardly extending projection and said packing, the opening of said passageway permits the passage of the metered quantity of fuel delivered when said first operating mechanism is operated, said burner head being free of any connection with said cover member and independently moveable thereof, whereby rotation of the cover member is effective to vary said central opening to control the metered quantity of fuel delivered by said wick into said gas hole.

16. A lighter according to claim 14, wherein said valve includes a cup-shaped valve casing having the base thereof in open communication with the interior of said tank, a resilient support in said cup-shaped member and having a central opening in registry with the casing opening, a movable stand having an upwardly extending flange portion provided with a gas hole therethrough in registry with said central opening, a wick having one end extending into said tank and its other end passing through said central opening and extending into said gas hole, an externally threaded cover member screwed into a cooperat-

ing screw thread formed in said casing, said cover member including a fuel cylinder provided with an opening in the base thereof and a leg portion adapted to engage said movable stand when fuel issues from said burner head, said leg portion overlies said movable stand to press it downwardly to compress said resilient member, the degree of compression of said resilient member being adjustable by screwing said cover member up and down, the neck portion of the burner head passing through the fuel cylinder base opening, a packing member engaging the wall of said fuel cylinder and the neck portion to prevent fuel from leaving through the base opening, said burner head including a fuel passage connected to said neck portion and extending within said fuel cylinder, said fuel passage being provided with a longitudinal gas passage and having an enlarged end part, a packing positioned within said end part closing off said gas passage and overlying said gas hole, spring biasing means coupled to said fuel passage maintaining said packing in engagement with said upwardly extending flange portion to seal off said gas passage from said fuel cylinder and to compress said resilient member to restrict said central opening thereof and prevent fuel from passing through said wick into said gas hole, transverse passages in the wall of said fuel passage to provide communication between said gas passage and said fuel cylinder, said lifting member being effective to lift the burner head and said packing from said upwardly extending flange portion to open said central opening to pass fuel through

said wick and to provide a fuel passage between the top of said flange portion and the bottom of said packing, the width of said last-mentioned fuel passage being controlled by said cover member to permit the passage of a metered quantity of fuel, whereby rotation of said cover member is effective to vary said central opening to control the metered quantity of fuel delivered by said wick into said gas hole.

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