United States Patent [19]

Jackson

[11] **3,890,087**

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[54] **DISPOSABLE FIREPLACE AND OVEN LIGHTER**

[76] Inventor: **Crowell B. Jackson,** 179 E. 79th St., New York, N.Y. 10021

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[51] **Int. Cl.**[2] **F23Q 1/02**

[58] **Field of Search** 431/142, 143, 254, 276, 431/277

[56] **References Cited**

UNITED STATES PATENTS

3,533,718	10/1970	Shuto	431/254
3,814,572	6/1974	Nitta	431/254
3,854,862	12/1974	Webster	431/254

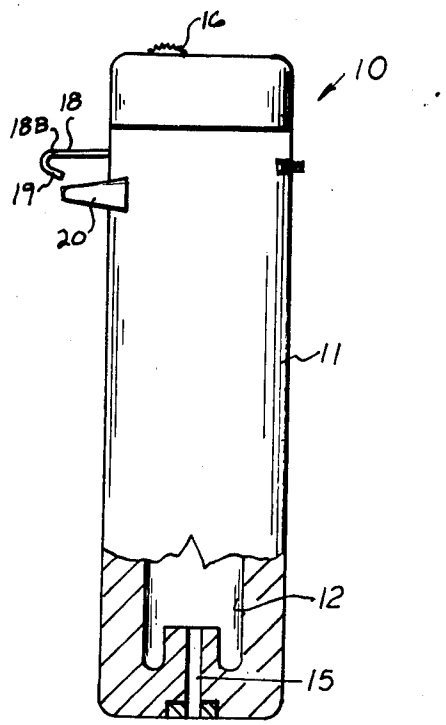
Primary Examiner—Carroll B. Dority, Jr.

Attorney, Agent, or Firm—Philip G. Hilbert

[57] **ABSTRACT**

A manually operated, disposable gas lighter adapted for lighting ovens, fireplaces, barbecues and the like, which is provided with a locking member which is automatically actuated during the normal lighting operation to maintain ignition of the lighter until such time that the locking member is released. An elongated body or extension is also operatively associated with the lighter to adapt the same for purposes other than lighting cigarettes or the like.

9 Claims, 4 Drawing Figures



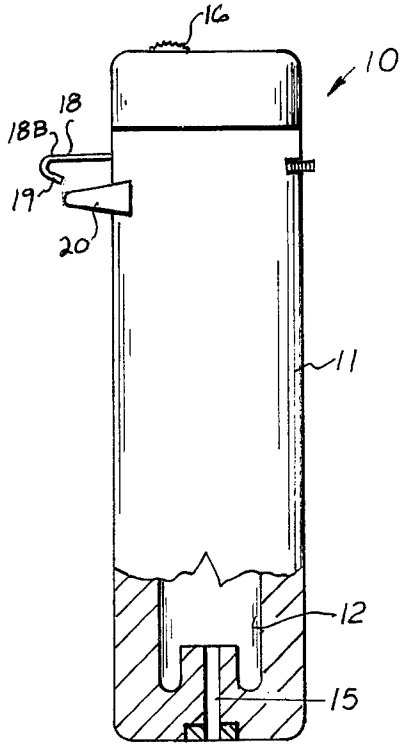


FIG. 1

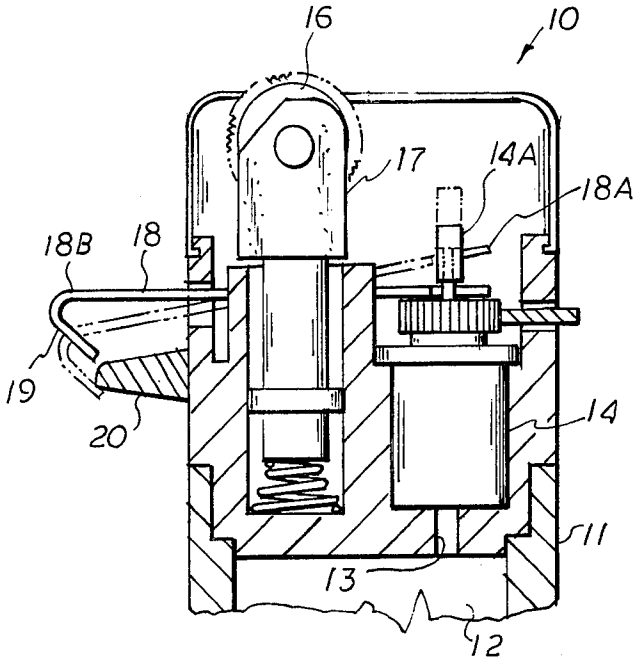


FIG. 2

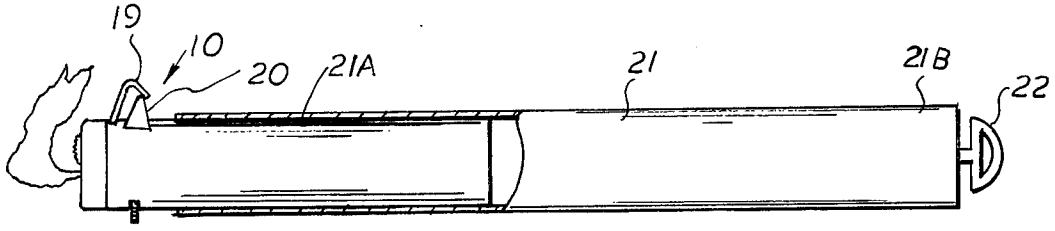


FIG. 3

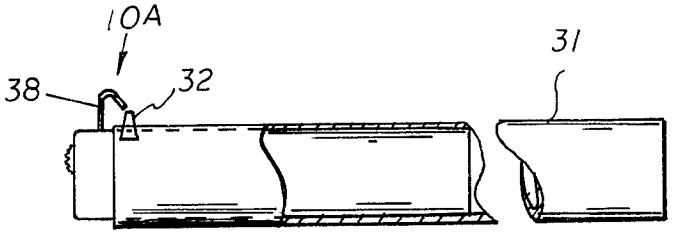


FIG. 4

DISPOSABLE FIREPLACE AND OVEN LIGHTER

BACKGROUND OF THE INVENTION

The invention is directed to an improvement in gas lighters of the type disclosed in U.S. Pat. Nos. 3,533,718 and 3,157,038. These lighters which are generally referred to as "butane lighters" have gained wide acceptance as a conventional lighter for lighting cigarettes, cigars and the like. Such lighters generally comprise a housing having a reservoir for holding a supply of volatile liquid fuel. A movable valve is operatively associated with the fuel reservoir to control the flow of the gaseous or volatilized fuel from the reservoir to maintain ignition. An igniting means generally in the form of a friction sparking wheel is provided to ignite the escaping gas when the valve is opened. Lighters of this type are provided with a valve opening mechanism arranged for actuation simultaneously with the actuation of the sparking wheel.

In such known lighters it has been necessary for the user to maintain a physical pressure or force on the valve actuator to keep the same in an open position so as to maintain the resultant flame. For this reason, it is impossible for the user to maintain such pressure on the valve actuator for any extended time interval; and at the same time remove one's hand to a safe holding position which is necessary, when one is lighting an oven, fireplace, barbecue or the like. This is particularly the case when such lighters are designed to be held in the palm of the hand so that the requisite pressure had to be maintained by the thumb of the holding hand.

Also, such lighters have been proved practical only when the lighter is held in a vertical position. Any effort to utilize the ligher when burning in a non-vertical position would cause the flame to flare back uncomfortably close to the user's thumb which is maintaining the pressure on the valve actuator. This diadvantage is particularly troublesome in the case of the inexpensive lighters which have no flame adjustment feature. Even on the more expensive lighters having a flame adjustment means, which controls the rate of flow of gas fuel to thereby avoid flareback of the flame toward one's hand; the noted disadvantage will materialize when the pressure of the gas is diminished with use.

OBJECTS OF THE INVENTION

An object of this invention is to provide a disposable gas lighter in which the flame can be maintained at a safe distance from the user's hand; independently of any applied force on the part of the operator.

Another object of this invention is to provide a gas lighter in which the fuel valve can be mechanically locked in its on position upon ignition.

Another object is to provide a gas lighter in which the fuel valve is automatically mechanically locked in open position simultaneously with the actuation of the sparking ignition wheel.

Another object is to provide a gas lighter with an extension housing whereby it can be safely used in any position.

Another object is to provide a gas lighter with extended body which have complementary means to mechanically lock the fuel valve in open position.

BRIEF DESCRIPTION

The foregoing objects and other advantages are attained by a gas lighter which comprises a housing having a reservoir for containing a volatile liquid fuel and a normally closed valve for controlling the flow of gaseous fuel. Operatively associated with the valve is an actuator which is positioned relative to the sparking or ignition wheel so that the actuator can be actuated simultaneously upon a user actuating the ignition or sparking wheel. In accordance to this invention, a mechanical latching means is provided to mechanically latch the valve actuator in the valve "open" position so that ignition of the lighter can be maintained over an extended period of time independent of any applied force being maintained on the valve actuator by the user. This is attained by providing a valve actuator with an extended latching portion adapted to engage a complementary catch formed on an adjacent housing part. The invention further contemplates an housing or body extension adapted to receive the housing of the lighter whereby the lighter may be utilized as a torch. The housing body extension may be provided with a complementary catch to cooperate with and engage the valves actuator latch to mechanically maintain ignition of the lighter.

FEATURES

A feature of this invention resides in the provision of a relatively inexpensive and positive acting mechanical locking mechanism for locking the valve of a gas lighter in open position to maiantain ignition independent of any holding force applied by the user.

Another feature of this invention resides in a positive mechanical valve locking mechanism which can be readily applied to existing lighter construction with a minimum of any structural changes.

Another feature resides in the provision of a body extension for adapting the lighter for use as a lighting torch for purposes other than lighting cigarettes or cigars.

Another feature resides in the provision of a body extension for a gas lighter having a catch means for cooperating with a valve actuator catch for mechanically locking the gas valve of a gas burner in open position.

Other features and advantages will become more readily apparent when considered in view of the drawings and specification in which:

FIG. **1** is a side elevation view of a gas lighter embodying the invention having parts shown in section.

FIG. **2** is a fragmentary enlarged sectional view of the lighter of FIG. **1.**

FIG. **3** is a side view of a modified embodiment.

FIG. **4** is a side elevation view of a modified housing extension.

DETAILED DESCRIPTION

Referring to the drawings, there is shown in FIGS. **1** and **2** a lighter construction **10** embodying the present invention. The lighter **10** is a gas lighter which utilizes a highly volatile liquid fuel, e.g., butane, and may be generally referred to as a butane gas lighter. Such lighters have gained wide acceptance as cigarette and cigar lighters. The lighter **10** comprises a housing **11** having a reservoir **12** adapted to contain a supply of volatile liquid fuel, e.g., butane. The upper end of the reservoir is provided with an outlet opening **13** which is connected to the inlet of a gas valve **14.** The gas valve **14** is of conventional construction having a nozzle end **14A** which is normally maintained in a closed position.

Thus the valve **14** comprises a normally closed valve. The reservoir **12** of the lighter may be filled through an injector filler valve **15** located in the bottom end of the housing.

Mounted on the upper end of the housing **12** in igniting relationship with the gas valve or nozzle **14A** is a sparking or ignition wheel **16.** The periphery of the wheel **16** is provided with a roughened surface arranged to engage a flint or spark generating means which is normally urged against the periphery of the wheel. The sparking wheel is rotatably journalled on a post **17** extending beyond the top of the housing.

Pivotally mounted on the post **17** adjacent the sparking wheel **16** is a valve actuator **18.** The valve actuator comprises a lever having one end **18A** bifurcated to engage a reduced portion of the valve nozzle **14A.** Thus the end **18A** of the actuator **18** is suitably connected to the valve nozzle to effect the opening of the valve when actuated, as will be hereinafter described.

The outer end **18A** of the valve actuator is extended beyond the periphery of the housing and is formed with a spring detent or latch **19.** Adjacent the latch end **19,** the housing is provided with a projecting catch **20** which is in the form of a protuberance which constitutes preferably a part of the housing **11.**

As seen in FIG. **1** and by the solid line showing in FIG. **2,** in the normal inoperative position, the latch end **18A** of the actuator **18** is spaced above the catch **20.** In this position the valve **14** is normally closed.

It will be noted that the valve actuator **18** is disposed relative to the sparking wheel and the valve nozzle **14A** so that in operation, the latch end **18A** of the actuator is normally or automatically depressed when the sparking wheel is rotated to effect ignition of the lighter **10.** The natural movement is such that the extended end **18A** of the actuator is depressed whereupon the latch or spring detent **19** automatically engages or hooks the catch **20** to lock the valve in open position. In this manner the valve can be maintained in an open ignited position for as long as desired without the user maintaining a physical force on the valve actuator **14.**

To release the catch **19** to close the valve, the operator need only to apply slight upward pressure on the latch **19** to disengage it from the catch **20.** The spring (not shown) which acts on the valve **14** to normally maintain the valve **14** in closed position insures positive release of the latch **19** when disengaged from the catch **20.**

With the construction described, it will be apparent that an operator while holding the lighter **10** in the palm of his hand in the usual manner can effect simultaneous lighting and locking of the valve **14** in the open position by the same thumb motion required for lighting conventional lighters; and that the flame can be extinguished by a reverse flick of the thumb of the holding hand. It will also be apparent that the described invention can be incorporated in a lighter without substantially altering the lighters of known construction.

To provide additional versatility to the lighter construction **10** described, there is provided a tubular housing extension **21** which is opened at one end **21A** which is sized to frictionally receive and retain the lighter **10** herein described. The housing extension thus provides the lighter **10** with the additional versatility in that the lighter may be used as a torch or ignitor to ignite fire places, ovens, barbecues and the like. Thus when the lighter **10** is used to start fire place fires, and the like, as shown in FIG. **3,** the housing extension enables one to hold the lighter so that the tendency of the flame comeback cannot burn or injure the holder. It will be further apparent that the locking means **19** and **20** described enables the lighter **10** adaptable for use with the housing extension, since the locking means **19,** 20 enables the ignition of the lighter **10** to be maintained without the need for the operator to physically maintain the valve **14** open. If desired a hanging loop or hook **22** may be connected to the other end **21B** of the housing extension **21.**

FIG. **4** illustrates a modified housing extension **31.** This extension may be similar to that described with respect to FIG. **3,** except that extension **31** is provided with a catch **32** which is adapted to engage the locking latch **18** of a lighter.

However it will be understood that a lighter utilized in conjunction with the housing extension **31** does not require the catch projection **20** as shown in FIGS. **1** and **2.** Thus in the combination of FIG. **4,** the latch **38** of lighter **10A** is cooperative with the catch **32** which is formed on the housing extension **31.**

In all other respects the operation and construction the lighter combination of FIG. **4** is similar to that hereinbefore described.

While the invention has been described with respect to various embodiments thereof, it will be understood and appreciated that variations and modifications may be made without departing from the spirit or scope of the invention.

What is claimed is:

1. For use in a gas lighter having a housing containing a reservoir portion for containing a volatile liquid fuel,
- a normally closed valve for controlling the flow of gaseous fuel from said reservoir,
- a sparking ignition means disposed in ignition relationship to said normally closed valve,
- the improvement comprising:
- a valve actuator connected to said normally closed valve,
- means for pivotally mounting said valve actuator on said housing,
- said actuator having an extended portion extending beyond the periphery of said housing,
- a latching means formed on the extended end of said valve actuator,
- a complementary catch means formed on said housing adjacent said latching means whereby said latching means automatically engages said catch to mechanically lock said valve actuator and connected valve in the open position upon ignition of said gas lighter.

2. The invention as defined in claim **1** wherein said latch means includes a spring detent connected to said extended portion of said valve actuator, and
- said catch means including a projection formed integral on said housing.

3. The invention as defined in claim **1** wherein said valve actuator is positioned adjacent said sparking wheel so that said actuator is activated substantially simultaneously upon actuation of the sparking wheel so that the initiation of the ignition spark, opening of the gas valve and locking said valve in open position occurs substantially simultaneously.

4. The invention as defined in claim **3** and includes a housing extension adapted to receive said gas lighter.

5. The invention as defined in claim 4 wherein said housing extension comprises a tubular member sized to frictionally receive the lighter housing.

6. The invention as defined in claim 5 and including means for hanging said housing extension.

7. In combination a gas lighter comprising:

a housing having a reservoir portion adapted to contain a supply of volatile liquid fuel,

a normally closed valve connected to said reservoir portion to control the flow of fuel gas therefrom,

a sparking wheel means mounted on said housing in ignition relationship to said valve,

a valve actuator,

said valve actuator being pivotally mounted on said housing,

said valve actuator having one end connected to said valve, and having its other end extended adjacent to said sparking wheel and projecting beyond the periphery of said housing,

said extended end of said valve actuator defining a spring latch,

a tubular housing extension which is opened at one end,

said lighter housing being adapted to being secured in the opened end of said housing extension,

and a catch means disposed adjacent said latch whereby said latch is arranged to engage said catch to mechanically lock said valve in open position upon ignition of said lighter.

8. The invention as defined in claim 7 wherein said catch means comprises projection formed on the housing of said lighter.

9. The invention as defined in claim 7 wherein the catch means is connected to the housing extension.

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