LIQUEFIED GAS LIGHTER HAVING COMBINATION BURNER AND FILLING

A liquefied gas lighter of the type having a combination burner and filling valve. The burner valve is provided with an adjustment mechanism for the flame disposed at the bottom of the liquefied gas tank. The adjustment mechanism includes a rotatable adjusting device which, in turn, serves to receive the filling valve. The adjusting mechanism acts on a rotatable interconnecting control member which serves to throttle the flow of gas by means of a fleece that may be squeezed by the rotation of the control member thus regulating the size of the flame.

3 Claims, 1 Drawing Figure
LIQUEFIED GAS LIGHTER HAVING COMBINATION BURNER AND FILLING

BACKGROUND OF THE INVENTION

Liquefied gas lighters are known which have a burner valve mounted in a tubelike body extending from one end of the gas tank to the other. This valve tube is secured to the walls of the gas tank, for example, by a suitable adhesive. The interior of the valve tube contains the adjustment mechanism of the burner valve. This adjustment mechanism operates on an adjustment member which is disposed at the bottom of the gas tank. The adjustment member is sealed against the ambient air by means of O-rings and, in turn, houses the filling valve. It is well known that, during the filling of the lighter with a liquefied gas, a strong local cooling takes place. This is due to the evaporation of the liquefied gas. Accordingly, the adjustment member, with its filling valve and the valve tube are rapidly cooled. This causes a shrinkage of the diameter of the valve tube as well as a shortening of the entire valve tube. Since the valve tube is secured at both ends within the walls of the gas tank, large temperature differences are experienced at these places so that fine cracks may form at the portions of the tube secured to the tank walls. This, in turn, may cause escape of the liquefied gas which is at a pressure above atmospheric so that the lighter is no longer capable of operating.

Additionally, the burner valve, with its valve tube, is difficult to remove and replace. When the lighter needs to be repaired, it is usually necessary to replace the entire gas tank with both burner and filling valves.

It is, accordingly, an object of the present invention to provide a liquefied gas lighter having a combination burner and filling valve which obviates the drawbacks of the prior art lighters as discussed.

Another object of the present invention is to provide a liquefied gas lighter having a burner valve which combines the advantages of being capable of adjustment at the bottom of the gas tank with simplified assembly and repair of the valve mechanism.

A further object of the present invention is to provide a lighter of the type referred to which avoids the possibility of the gas tank leaking due to the large temperature changes experienced when the lighter is filled with liquefied gas.

SUMMARY OF THE INVENTION

A liquefied gas lighter in accordance with the present invention includes a burner valve which is operatively connected to the free end of an interconnecting control member which forms the throttle device for the gas flowing to the burner. This free end of the control member and the rotatable adjustment member are each inserted into a separate tube. Each of the two tubes separately extend through the walls of the gas tank, each tube being sealed from the ambient air. In accordance with the invention, it is now achieved that temperature-caused tension may not occur between the places where the tubes are secured to the walls of the gas tank.

The valve construction of the invention was not made obvious to the man skilled in the art. This is made evident by the fact that the prior art lighter construction previously described has been manufactured for a long period of time. The same construction has been used for the burner valves of a lighter without a filling valve disposed within the flame adjustment mechanism arranged in the tank bottom. Even in this case, a valve tube extending from one end of the tank to the other has been provided; that is, from the burner valve to the bottom of the tank where the adjustment mechanism is disposed.

According to a further advantageous feature of the invention, the interconnecting control member is guided or mounted within the adjustment member on the one hand, and the valve body on the other hand. The burner valve advantageously is provided with a tubelike extension which extends beyond the throttle device and partially past the control member. Accordingly, the interconnecting control member of the invention, when mounted within the tubelike extension to tension the fleece of the throttle device by means of a screw thread, may be rotated within the tubelike extension to tension the fleece of the throttle device by means of a screw thread.

The novel features of the invention and their principles of operation, as well as additional objects and advantages of the invention, will become apparent and be best understood from a consideration of the following description when taken in connection with the accompanying drawing which is presented by way of illustrative example only.

BRIEF DESCRIPTION OF THE DRAWING

The single FIGURE is a sectional view, parts being broken away, of a gas tank of a liquefied gas lighter including a combination burner and filling valve according to the invention, capable of adjustment of the flame from the bottom of the gas tank.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing, there is shown a portion of a liquefied gas lighter including a gas tank 1. The gas tank 1 includes an upper portion 11 and a bottom portion 12, the two portions being, for example, adhesively secured together. The upper portion 11 is provided with a cylindrical opening 111 within which is secured a valve tube 2 having an outer flange. The valve tube 2 may be secured by a suitable adhesive or by a screw thread, as shown. In case the valve tube 2 is threaded, the tube is sealed by means of a seal 3 to the upper portion 11 of the tank.

A burner valve 4 is disposed in the tube 2. The portion of the burner valve 4 within the tank is provided with a throttle device 5 which may consist of two flue discs 51 and 52. By tightening or releasing the two discs 51 and 52, the flow of gas to the burner may be decreased or increased. The two discs 51 and 52 are disposed within a tubelike extension 41 of the valve tube 4. They bear against a support 42 of the valve and against an interconnecting control member 6 which may be tensioned within the tubelike extension by means of a screw thread 411 against the support 42.

The bottom portion 12 of the gas tank is similarly provided with a bore or cylindrical opening 121 within which is disposed a tube 7 having an outer flange. The tube 7 is secured to the tank and sealed therewith. It receives an adjustment member 8 which houses the filling valve 9. The adjustment member 8 is rotatably mounted and sealed to the wall of the tank. The adjustment member 8 is secured against axial movement by a safety disc 10. It is provided with a tubelike extension 81 extending into the tank for receiving the interconnecting control member 6. The filling valve 9 is tensioned against the interconnecting control member 6 by means of a spring 13. Rotation of the adjustment member 8 for increasing or decreasing the height of the flame is transmitted by means of a pin 61 slidably disposed in two slits 82 of the tube 81 to the interconnecting control member 6. By means of the slits 82 in the tube 81, axial movement of the interconnecting control member 6 within the tube 81 is permitted. This axial movement of the member 6 also makes possible the temperature compensation which is achieved by the valve construction of the invention.

A particular advantage of the invention consists in that the adjustment mechanism at the bottom of the tank, as well as the burner valve at the top of the tank, may be separately replaced. This was not possible with prior art lighters because the entire valve combination had to be fastened to the tank as a single unit so as to obtain a gastight connection. Also, it is no longer necessary to provide an exact alignment of the apertures in the upper and lower portion of the tank for receiving the valve combination.

Experience has shown that the rejection rate of defective tank housings, as well as of defective complete lighters, by the use of the valve combination of the invention has been drastically reduced. Also, repairs may be effected faster, simpler, and cheaper than with prior art lighters.

What is claimed is:

1. A liquefied gas lighter comprising:
3,642,422

a tank for the liquefied gas having an upper and a lower portion;
a burner tube extending from the upper portion of said tank into said tank and sealed thereto;
an adjustment tube extending from the lower portion of said tank into said tank and sealed thereto;
a burner valve including a throttle device disposed in said burner tube;
a rotatable adjustment mechanism disposed in said adjustment tube;
an axially movable interconnecting control member interconnecting said adjustment mechanism and said throttle device; and

4

a filling valve disposed in said adjustment mechanism.
2. Lighter as defined in claim 1 wherein said interconnecting control member is guided at one end within said adjustment mechanism and at its other end by said burner valve.
3. Lighter as defined in claim 2 wherein said burner valve is provided with a tubelike extension, said extension extending beyond said throttle device and past a portion of said control member, said control member and said extension having cooperating threads, whereby said control member may be tensioned against said throttle device by rotation of said adjustment mechanism.

* * * * *